THE CORPS OF ENGINEERS: CONSTRUCTION IN THE UNITED STATES

CHAPTER I

Legacy of World War I

Reviewing the lessons of World War II, Lt. Gen. Leslie R. Groves declared: "Mobilization was decisive and construction generally controlled mobilization."[1] In 1939, when hostilities began in Europe, the United States was ill prepared to counter threats to its security. To be sure, the Navy, the first line of defense, ranked with Britain's mighty fleet. But the Army was barely more than a token force, and the country had virtually no munitions industry. Before the nation could realize its huge military potential, it had first to build a vast complex of camps, plants, airfields, hospitals, and depots. As Presidential adviser Sidney Hillman pointed out in 1941:

> Construction is not only the biggest single part of defense, it is also the first step in defense. Before we can produce guns and planes and tanks, we must build defense plants or alter non-defense plants to new production . . . . Similarly, if we are to train our Army well, our soldiers must be provided with proper living conditions in camps and cantonments.[2]

Construction was the first major industry to attain large-scale defense and war production in World War II. A 15.6-billion-dollar Army construction effort set the pace for mobilization and laid the foundations for victory.

A Backward Glance

The nation's early wars told a different story. Before the 20th century, mobilization necessitated little construction. In the American Revolution, the War of 1812, the Mexican War, and the Civil War, armies were raised by mustering small units, which went almost immediately on active service in the field. There, bivouacked in tents or sheltered in crude huts of their own design, troops received such training as time permitted. In the Spanish-American War, regiments assembled at fairgrounds, race tracks, and armories and moved rapidly to tent cities at Chickamauga, Tampa, and other points in the Southeast, whence they embarked for Cuba as soon as ships were available. For weapons and ammunition, the Continental Army relied on imports and on the products of small foundries, smithies, and the like. During the 19th century, American forces were armed and supplied with explosives by federal and state arsenals and by private manufacturers, principally Remington, Winchester, Colt, and DuPont. Until the age of modern mass armies, construction presented no serious wartime challenge.

Throughout most of the country's history, responsibility for military con-

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[1] Comments of Lt Gen Leslie R. Groves on MS, Construction in the United States, 1955, I, 1. Cited hereinafter as Groves Comments.

[2] S Sp Comm Investigating the National Defense Program, 77th Cong, 1st sess, *Hearings*, Part 8, p. 2493. Cited hereinafter as Truman Comm, *Hearings*.

struction was shared by various branches of the Army. At the outbreak of the Revolutionary War, Congress, following British and Colonial practice, assigned to the Chief Engineer the work of building bridges, roads, and fortifications and to The Quartermaster General the task of quartering the Army. Thus it was established early that the Corps of Engineers would perform combat construction and the Quartermaster Corps would see to sheltering troops. The division of authority did not end there. The Ordnance Department erected arsenals; the Signal Corps, after its founding in 1863, built some of its own facilities; and most of the other branches, at one time or another, also engaged in building work. Nevertheless, the two agencies most closely associated with military construction were the Quartermaster Corps and the Corps of Engineers.

The Quartermaster Corps was a multifunctioned organization concerned with service and supply. Provision of transport, shelter, clothing, and equipage were its principal functions. In discharging his construction duties, The Quartermaster General over the years encountered little difficulty. A handful of small posts sufficed to house the Army in the early days of the Republic. As the westward movement gained momentum, hundreds of garrisons were built on the frontier by the occupying troops. Most of these outposts were tiny and most were of rude design. In time many of them outlived their usefulness and were abandoned, but scores were retained as part of the regular establishment. At permanent stations, buildings of brick and stone gradually replaced the log and frame structures of earlier days. Utilities became more elaborate; and maintenance work assumed greater importance. From time to time, a large project cropped up, for example, the Jeffersonville Depot in Indiana and the quarters for the Hawaiian Division at Schofield Barracks. But the volume of work was never large. Between 1865 and 1900 Congress seldom authorized more than 150 new buildings a year.[3]

Quartermasters General carried out construction with a minimum of organization. In the Office of The Quartermaster General in Washington an officer or two and a few civilians took care of budgetary and other administrative matters. Most officers on construction duty in the field were temporarily detailed from the line. Their work, in most instances, was supervised not by The Quartermaster General but by local and departmental commanders. In the early days, construction not performed by troops was usually accomplished under a system known variously as day labor, force account, or purchase and hire—an arrangement whereby the officer in charge drew whatever plans were needed, purchased materials, hired workmen, and oversaw the work. As time went on and structures became more elaborate, master builders entered the picture. By the 1850's the Quartermaster Corps had begun to utilize the services of contracting companies which were then springing up in cities. After 1861 contracts with such firms came under a law of that year which required advertising except when "public exigency" demanded immediate per-

[3] Annual Reports of The Quartermaster General to the Secretary of War.

formance. By 1900 the Quartermaster Corps had constructed 120 permanent posts and stations with capacity for 34,000 men. The largest of these installations, Fort Riley, Kansas, could accommodate 1,300 troops; the smallest, Fort Ontario, New York, could house 40.[4] With only a small amount of work to do, oriented toward supply rather than toward construction, composed largely of detailed officers, few of whom had any technical background, and forced to rely more and more on private builders, architects, and engineers, the Quartermaster Corps was unable to develop anything approaching the construction capability of the Corps of Engineers.

A combat branch and a public works construction agency, the Corps of Engineers was a unique organization. Historically, June 16th, 1775, the date of the Corps' founding, was barely more significant than March 16th, 1802. On that day President Jefferson signed a bill providing for a Corps of Engineers—seven officers and ten cadets—to be stationed at West Point, New York, and to "constitute a military academy." Jefferson's main object was a national college of engineering, and he designed the new academy not to train officers of the line but to educate engineers for public service. The first engineering school in the United States, West Point was the leading one until the Civil War. The Army Corps of Engineers, composed almost exclusively of top academy graduates, was the only sizable group of trained engineers in the country. As the demand for internal improvements rose and federal projects multiplied, the government turned to the Engineers. Rivers and harbors improvements, surveys and explorations, roads, canals, lighthouses, and public buildings—the Corps' responsibilities came to encompass all of these. By the time the civil engineering profession came of age in America, the Corps' role in civil works construction was firmly established.

Peacetime construction experience, plus first-rate technical education, fitted Engineer officers for wartime combat, logistical, and command assignments. West Point Engineers, who after graduation had gone on to build seacoast defenses, made a brilliant record in the War of 1812. Not one fortification designed by them fell to the enemy. Historian Henry Adams wrote of their performance: "Perhaps without exaggeration the West Point Academy might be said to have decided, next to the Navy, the result of the war." Adams credited West Point Engineers with doubling the Army's capacity for resistance during the campaign of 1814.[5] The Corps' experience in organizing sizable labor forces and in directing large construction enterprises was of great importance in later wars. Not only did Engineer officers perform the traditional duties of military engineers—impeding enemy advances and assisting movements of friendly troops—but they

[4] (1) *Ibid.* (2) Testimony of Maj Gen Edmund B. Gregory, TQMG, 30 Sep 41. In H Comm on Mil Affs, 77th Cong, 1st sess, *Hearings* on H R 5630, p. 82. (3) 12 *Stat.* 220. (4) Statement by OQMG, 13 Nov 1900, sub: Capacity of Posts. Doc 15827 OQMG Doc File, 1800–1914.

[5] Henry Adams, *A History of the United States of America*, 1930 ed. (New York: Albert and Charles Boni, 1930), IX, 236.

also occupied high staff and command positions. In the Civil War the Army's top logistician was an Engineer: Montgomery C. Meigs; Robert E. Lee epitomized the Engineer commander. The defenses around Washington, the crossings of the Rappahannock under fire, and the bridging of the James exemplified the Engineer support of the Union Army. By employing the Corps in time of peace, the government continued to assure that competent military engineers would be available in the event of war.

As time went on, as the westward movement accelerated and the country grew, the construction capability of the Corps of Engineers was enhanced. Although control of West Point passed to the Army-at-large in 1866, engineering and mathematics continued to form the core of its curriculum, and its top graduates consistently chose careers in the branch that offered superior opportunities for public service. To supplement the West Point education of Engineer officers, the Engineer School was founded at Willet's Point, New York, in 1885. Meanwhile, during the great expansion following Appomattox, Congress focused greater attention on internal improvements, and civil works programs bulked large. From 1866 through 1900, federal expenditures for rivers, harbors, and flood control totaled $333 million. During this period, a permanent, nationwide organization came into being. In 1888 the need for a formal field structure led the Chief of Engineers, Brig. Gen. Thomas L. Casey, to remake the Engineer Department by creating five divisions—one west and four east of the Rocky Mountains. Later more divisions were added and districts, or subdivisions, were established.[6] At the turn of the century, the Army Engineers had a construction organization that was by far the largest, best trained, and most experienced in the country.

By the early 1900's, sentiment was growing in favor of placing all military construction under the Engineers. At the time the General Staff was constituted, such a change was considered but was not effected.[7] The question came up again and again. In 1910 a high-ranking proponent of the Engineers explained his position:

> It may, I believe, be asserted without fear of challenge that construction work in the army under present conditions leaves much to be desired. . . . Construction requires technical knowledge of a high order. Such knowledge is possessed by only a small percentage of the officers of the Quartermaster's Department, while in the Corps of Engineers every officer receives special training along those lines.[8]

Maj. Gen. Leonard Wood, Chief of Staff from 1910–1914, took the same stand. During his term the issue was hotly debated but no decision was reached.[9] The Quartermaster construction organization continued along

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[6] (1) W. Stull Holt, *The Office of the Chief of Engineers of the Army: Its Non-military History, Activities, and Organization* (Baltimore: The Johns Hopkins Press, 1923), pp. 11–17. (2) H Doc 330, 80th Cong, 1st sess, *Historical Statistics of the United States, 1789–1945: A Supplement to the Statistical Abstract of the United States* (Washington, 1949), p. 169. Cited hereinafter as *Historical Statistics of the United States, 1789–1945*. (3) *Annual Report of the Chief of Engineers, U.S. Army, 1889* (Washington, 1889), Part 1, p. 16. (4) Paul W. Thompson, *What You Should Know About the Army Engineers* (New York: W. W. Norton and Company, Inc., 1942), pp. 194–198.

[7] S Doc 421, 57th Cong, 1st sess, 23 Jun 02.

[8] Rpt, TIG to SW. In WD Annual Rpts, FY Ending 30 Jun 10. OCE Doc 81599.

[9] (1) OQMG 1800–1914, Doc 494615. (2) OCE Docs 93454, 99428.

as before. Meanwhile, Engineers were building the Panama Canal.

Serious obstacles barred the way to a transfer. Maj. Gen. James B. Aleshire, the prestigious officer who was The Quartermaster General from 1907 to 1916, was unalterably opposed.[10] Many officers in other branches resented the proud bearing of the Engineer elite and the Corps' close relationship with Congress. Moreover, powerful opposition existed within industry. Since the 1870's, a movement had been under way among contractors and civil engineers to establish a Federal Department of Public Works and to assign to it the Engineers' civil functions.[11] Any step which would strengthen the Corps was certain to provoke determined resistance from backers of this proposal. The organization was left unchanged.

As the holocaust of World War I engulfed Europe, the old idea persisted in the United States—a million men would spring to arms overnight. This belief was outmoded. The days of taking the flintlock off the wall and going off to fight were beyond recall. A new day had dawned, a day of large-scale mobilization, systematic training, and technological warfare. Camps to house whole divisions; plants to mass-produce weapons and ammunition; warehouses, depots, and terminals to handle huge quantities of matériel; and myriad other facilities had become sinews of war. In a country which had no sizable standing army, no munitions industry to speak of, and few facilities to support a mighty military effort, construction had become the key to preparedness.

Mobilization: 1917

Like most of the War Department, the Construction and Repair Division, Office of The Quartermaster General (OQMG), was thrown into confusion by the declaration of war against Germany in April 1917. Following the neutral course set by President Woodrow Wilson, who continued to discourage military planning even after the diplomatic break with Berlin in February 1917, the Army had made few preparations to mobilize. One man who visited construction headquarters shortly after hostilities began described the scene as near bedlam: "There were a couple of Army officers and stenographers. . . . Every contractor in the country was here. All those men did was to stand in front of the desk and shake hands all day. . . . Paper was stacked high on the desk and there was confusion galore."[12] The uniformed handshakers were Col. Isaac W. Littell, the division chief, and his two assistants, Capt. William H. Oury and Capt. Richard C. Marshall, Jr. Littell, an 1883 West Point graduate, was an officer of the old school who preferred to do things by the book. Oury, his executive, was a Signal officer, nearing the end of a four-year detail with the Quartermaster Corps. The live wire of the organization was "Puck" Marshall, a Coast Artillery of-

[10] Memo, TQMG for TSW, 4 Mar 14. OQMG 1800–1914, Doc 494615.

[11] (1) S Commerce Comm, 50th Cong, 1st sess, *Hearings* on S 1448, Apr 1888, pp. 3–74. (2) S Report 1848, 50th Cong, 1st sess, 18 Jul 1888, pp. 64–69.

[12] Transcript of Conv, W. A. Starrett with G. B. Clarkson, 9 Aug 17. In H Subcomm of the Select Comm on Expenditures, 66th Cong, 1st sess, *Hearings*, II, 2525. Cited hereinafter as Conv, Starrett with Clarkson.

ficer, serving his second Quartermaster detail. Scion of a prominent Old Dominion family, an honor graduate of Virginia Military Institute and a former mathematics professor there, he displayed a rare blend of boyish charm and aggressive leadership. Word had gone out that a million men would be called to arms. A big construction effort seemed imminent, but Littell and his officers did not know what role they would have in it.

Their resources for handling a large emergency program were meager, and their claim to such responsibility was weak. In the spring of 1917, the Construction and Repair Division had three officers and fifty-three civilians in Washington and a handful of constructing quartermasters in the field.[13] Except for blueprints of barracks and mess halls prepared for use on the Mexican border by the Punitive Expedition of 1916, Littell had no plans for temporary structures. Nor did he have any plans for organizing and directing a huge, high-speed construction effort.[14] Providing temporary shelter had long been a duty of commanders in the field. When the United States entered the war against Germany, many assumed that the commanding generals of the six regional departments would build whatever camps were necessary. Some, among them General Leonard Wood, advocated that the work be done by the Corps of Engineers. But despite Littell's lack of preparation and despite the availability of the Engineer Department, the General Staff on 7 May ordered The Quartermaster General to complete thirty-two divisional cantonments by 1 September.[15]

Among the prominent industrialists who hastened to Washington to volunteer their services after war was declared were William A. Starrett, president of Starrett & Van Vleck, architects of New York City; Morton C. Tuttle, general manager of the Aberthaw Construction Company of Boston; and Clemens W. Lundoff, vice president of Crowell, Lundoff and Little of Cleveland. Late in April Secretary of War Newton D. Baker asked these men to form the Committee on Emergency Construction under the General Munitions Board. Starrett chaired the committee. Frederick Law Olmsted, the famous landscape architect, joined the group. Leonard Metcalf, one of the country's foremost designers of water and sewerage systems, and two leading consulting engineers, George W. Fuller and Asa E. Phillips, agreed to act as a subcommittee on engineering.[16] Taking the situation in hand, the Starrett committee charted the course war construction would follow.

To Starrett and his colleagues, the magnitude of Littell's task was appalling. Time was short, and the Quartermaster Corps was unfamiliar with high-speed building operations. A quick survey of the Construction and Repair Division convinced the committee that "the machine would collapse; that it would not accomplish anything." Urging swift

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[13] *Report of the Board of Review of Construction To The Assistant Secretary of War, August 31, 1919* (Washington, 1920), p. 99. Cited hereinafter as *Blossom Report.*

[14] (1) Ltr, TAG to TQMG, 21 Mar 17, and 1st Ind, same date. AG 2540178. (2) Ltr, TQMG to TAG, 9 Apr 17. AG 2570158.

[15] 1st Ind, TAG to TQMG, 7 May 17, on Memo, Chief, WCD GS for CofS, 4 May 17. AG 2593945.

[16] Min of the Gen Mun Bd, 27 Apr 17, p. 61; 10 May 17, p. 81; 22 May 17, p. 99. In Sp Comm Investigating the Mun Industry. S Comm Print 7, 74th Cong, 2d sess.

action, Starrett told Munitions Board Chairman Frank A. Scott to get Littell out of the War Department, "as it is no fit place for a man to try to do business," and to "get him space and some people around him." Scott agreed: "All right, we will get him out this afternoon." He put through a call to Secretary Baker, who promised to move Littell's office right away to the Munsey Building in downtown Washington.[17]

On 19 May Baker established the Cantonment Division with Littell as chief. Nominally a part of the Quartermaster Corps, the new organization was, for all practical purposes, separate. Littell would report directly to the Secretary of War. He would appoint and assign his own officers, issue travel orders on his own authority, and communicate with department and division commanders without reference to The Quartermaster General.[18] Littell had a single mission—to complete thirty-two cantonments estimated to cost $90 million by September 1917. Writing to him in May Starrett emphasized the "magnitude of the undertaking":

> In 16 weeks you are expected to have suitable quarters ready for the training of 1,100,000 men. . . .
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> You must be building in 32 places at once. Most of the sites for the cantonments have not yet been chosen. When they have been fixed a group of engineering problems of first importance must be settled. The water supply for each camp must be carefully studied. Failure to supply abundance of pure water may jeopardize the whole undertaking. Proper sewerage must be provided if the danger of epidemic is to be forestalled. Heating, lighting, refrigerating, and laundry facilities must be furnished. The solution of these engineering problems will be different in every locality.
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> The planning alone for construction work of each of the camps would normally take as many weeks as is given you for the completion of both the engineering and the building.
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> . . . . . .
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> The total cost of the building of the Panama Canal was approximately $375,000,000. This operation covered a period of 10 years, and the largest amount expended in any single year in the construction of the Canal was $49,000,000, but little over one-half of the sum that you are asked to expend in 16 weeks.[19]

Part of the staff of the Construction and Repair Division moved to the Munsey Building; part remained behind to take care of maintenance and repair work. Clearly, Littell would need reinforcements.

The Starrett committee assembled a high-powered staff for the Cantonment Division. Calls went to the country's leading construction firms: send us your best men. Frank M. Gunby, a partner of Charles T. Main, Inc., arrived from Boston to take charge of engineering. Dabney H. Maury, past president of the American Water Works Association, agreed to serve as Gunby's assistant. Milton J. Whitson, general superintendent of Grant Smith & Company of St. Paul, assumed direction of construction operations. Peter Junkersfield, president of the Association of Edison Companies, joined Whitson's staff. Robert E. Hamilton, general purchasing agent of the Stone & Webster Engineering Corporation, took on the job of buying materials. Wall Street lawyer

[17] (1) Min, Gen Mun Bd, 15 May 17, pp. 88–89. (2) Conv, Starrett with Clarkson, p. 2525. (3) Interv with Morton C. Tuttle, 15 Aug 56.

[18] Memo, TAG for Littell, 19 May 17. QM 020 (Constr) 1917.

[19] Memo, Starrett for Littell, 25 May 17. AG 2612346.

Evan Shelby appeared in Captain Marshall's office wearing striped trousers, frock coat, and spats to announce himself the division's legal adviser. Shelby promptly exchanged formal attire for Army khaki, as he and the others were quickly commissioned. Recruitment went forward rapidly. More civilian construction experts donned uniforms, the Civil Service Commission waived the requirement that employees be hired from its registers, and soon 250 persons were on the division's rolls.[20]

After about two or three days and nights of "solid conference," the members of the Starrett committee and the new officers of the Cantonment Division reached agreement as to how the building program should be handled. With the aid of Fuller, Metcalf, and Phillips, Major Gunby would prepare typical plans and layouts. Major Whitson, as construction manager, would direct the field forces, while six assistant managers, one for each Army department, would follow day-to-day operations at the job sites; six traveling supervisors would patrol the projects, watching for signs of trouble and giving on-the-spot help. Major Hamilton would procure all building materials, maintaining close contact with the various supply committees of the Munitions Board. Accountants, both in Washington and in the field, would check expenditures. In direct charge of each of the thirty-two cantonments would be a Constructing Quartermaster (CQM), who would have a staff of engineers, draftsmen, auditors, inspectors, and checkers to assist him. On 22 May the plan went to Littell. Two days later he approved it.[21]

Meanwhile, Starrett and his colleagues were seeking the answer to a crucial question—what method of contracting was best suited for emergency work. In peacetime the government used competitive agreements exclusively, for the old law of 1861 required advertising except "when immediate delivery or performance is required by the public exigency."[22] Advertised fixed-price contracts were awarded to the responsible contractor who submitted the lowest bid. The successful bidder agreed, within certain time limits, to furnish materials and complete construction in accordance with detailed plans and specifications. Where the agreement defined the scope of the project, the contractor received a lump-sum payment. Where the contract called for an indefinite quantity of certain specified items of work, such as square yards of paving, he received a unit price for each unit delivered. In normal circumstances, advertised fixed-price contracts offered several advantages on government work. Realistic competitive conditions tended to hold down bid prices. Advertisement obviated suspicion of favoritism and afforded every qualified and responsible bidder an opportunity to secure contracts for public work. Nevertheless, fixed-price contracts could be used only when complete plans and specifications were available. Even

[20] (1) Ltr, Pres CSC to Baker, 8 Jun 17, in Brig Gen Richard C. Marshall, Jr., Hist of the Constr Div of the Army, 1919, Book II. Cited hereinafter as Hist of Constr Div. (2) Interv with Brig Gen Richard C. Marshall, 11 Apr 57. (3) Conv, Starrett with Clarkson, p. 2526.

[21] (1) Conv, Starrett with Clarkson, p. 2526. (2) Memo, Comm on Emergency Constr for Littell, 22 May 17. Hist of Constr Div, Book II. (3) Canton Div Office Orders, 24 May 17. QM 020 (Constr) 1917.

[22] 12 *Stat.* 220.

then, these agreements could not be used effectively unless materials and labor markets were relatively stable. Furthermore, advertisement was time consuming. The Starrett group saw that this method was far too slow and cumbersome for a situation where time was of the essence.[23]

On 12 April 1917 Secretary Baker invoked the emergency provision of the 1861 law. Advertisement generally gave way to negotiation throughout the War Department. Fixed-price contracts were superseded by cost-plus-a-percentage-of-cost, whereby the government agreed to foot nearly all the bills and to pay contractors a percentage of the cost of the work. The Starrett committee adopted a modified form of this agreement, the "cost-plus with sliding scale and fixed maximum fee." Under it the contractor's fee represented a percentage of cost, but the percentage decreased, from 10 to 6 percent, as the cost advanced and the maximum allowable fee was fixed at $250,000. This agreement avoided the worst features of percentage contracting and preserved the best: construction could begin at once, without detailed plans and specifications; and changes in the scope of a project could be made easily and at any time.[24]

As Starrett saw it, contractors were the key to success in the operation. On the big cantonment jobs, planning and design would have to be carried out at the same time as construction. Even "the best engineering organization in the world," the committee held, could not handle such a task "without blunders."[25] Construction would have to be placed at a rate of $500,000 per week.[26] From long experience in the "building game," members of the Starrett committee knew who the best contractors were. As a check on their own judgment, they sent a confidential questionnaire to nearly 2,000 architects and engineers requesting them to appraise the organization, efficiency, and integrity of contractors with whom they had done business. At the same time, the committee asked architect-engineers and constructors to submit performance records, together with data on their organizations, personnel, and financial status. As replies came in, the committee classified firms according to geographic areas and graded them on the basis of size and experience. By early June, Starrett was in a position to recommend a top-flight company for each cantonment project.[27]

After the enactment of selective service legislation on 18 May 1917, several highly placed officers showed signs of developing cold feet. Shortly after the President signed the bill, Captain Marshall received a message from Brig. Gen. Joseph E. Kuhn, chief of the War College Division of the General Staff, and Brig. Gen. Enoch H. Crowder, who would have charge of the draft. They doubted if the draft could be called in September. According to Marshall, they stated "that construction could not be completed in time" and that they "would

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[23] (1) Memo, Comm on Emergency Constr for Gen Mun Bd, 9 May 17. Hist of Constr Div, Book III. (2) Min, Gen Mun Bd, 12 May 17, p. 86.

[24] (1) WD Orders, 12 Apr 17. (2) *Blossom Report*, pp. 41–43.

[25] Memo, Starrett for Littell, 25 May 17. AG 2612346.

[26] Conv, Starrett with Clarkson, p. 2531.

[27] (1) Memo, Comm on Emergency Constr for Gen Mun Bd, 12 Jun 17. Hist of Constr Div, Book III. (2) Min, Gen Mun Bd, 6 Jun 17, p. 126.

like to be able to advance that as a reason." Marshall replied that the cantonments would be completed on schedule. Should the draft be postponed and construction blamed, he would give the whole story to the newspapers.[28] Marshall's superior, Colonel Littell, took a different position. Called to Kuhn's office late in May and asked if the cantonments could be completed by September, he said it would be "physically impossible." On 29 May Secretary Baker approved an order deferring construction of cantonments for sixteen National Guard divisions. Work on cantonments for sixteen National Army divisions would be started at the earliest possible date. For these projects, the September deadline held.[29]

Meanwhile, the Cantonment Division was assuming the character of a big engineering firm. In their own eyes, the newly commissioned officers of the division were heads of an enterprise that differed from ordinary civilian undertakings only in size and urgency. The division corresponded to the company home office. CQM's, handpicked by Major Whitson for their experience with large projects, would have roles equivalent to general superintendents. Almost to a man, the civilians in uniform were impatient with military discipline, channels of command, customs of the service, and the caution displayed by old-line officers. Soon after Shelby took charge of the Contracts Branch, someone handed him a thick volume containing the Army Regulations. He tossed it into the wastebasket. He and his associates adopted four rules: build a team; throw away peacetime yardsticks; substitute the day for the dollar; and get the job done.[30]

During June the tempo quickened. On the 8th Chairman Scott of the Munitions Board and Colonel Littell approved the final draft of the new emergency contract. A few days later, Secretary Baker informally OK'd it.[31] With the help of civilian engineers recruited by Olmsted, site selection boards appointed by department commanders made rapid progress. By the 14th Baker had approved locations for twelve of the sixteen cantonments.[32] As sites were selected the Starrett committee nominated leading construction firms, among them George A. Fuller, Thompson-Starrett, Stone & Webster, Bates & Rogers, and Mason & Hanger, to build the cantonments. The subcommittee chose top professional organizations, such as Black & Veatch, Frank A. Barbour, Samuel A. Greeley, and Alvord & Burdick, to serve as architect-engineers. Littell and Baker approved the selections.[33]

On the morning of 11 June Shelby delivered the first two contracts for Littell's signature: the total estimated cost was nearly $13 million. Returning a short time later to find the colonel poring over the fine print, the attorney

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[28] Ltr, Marshall to OCMH, 30 Mar 55. See also article from New York *World*, June 19, 1917, reprinted in 55 *Cong. Rec.* 5187.

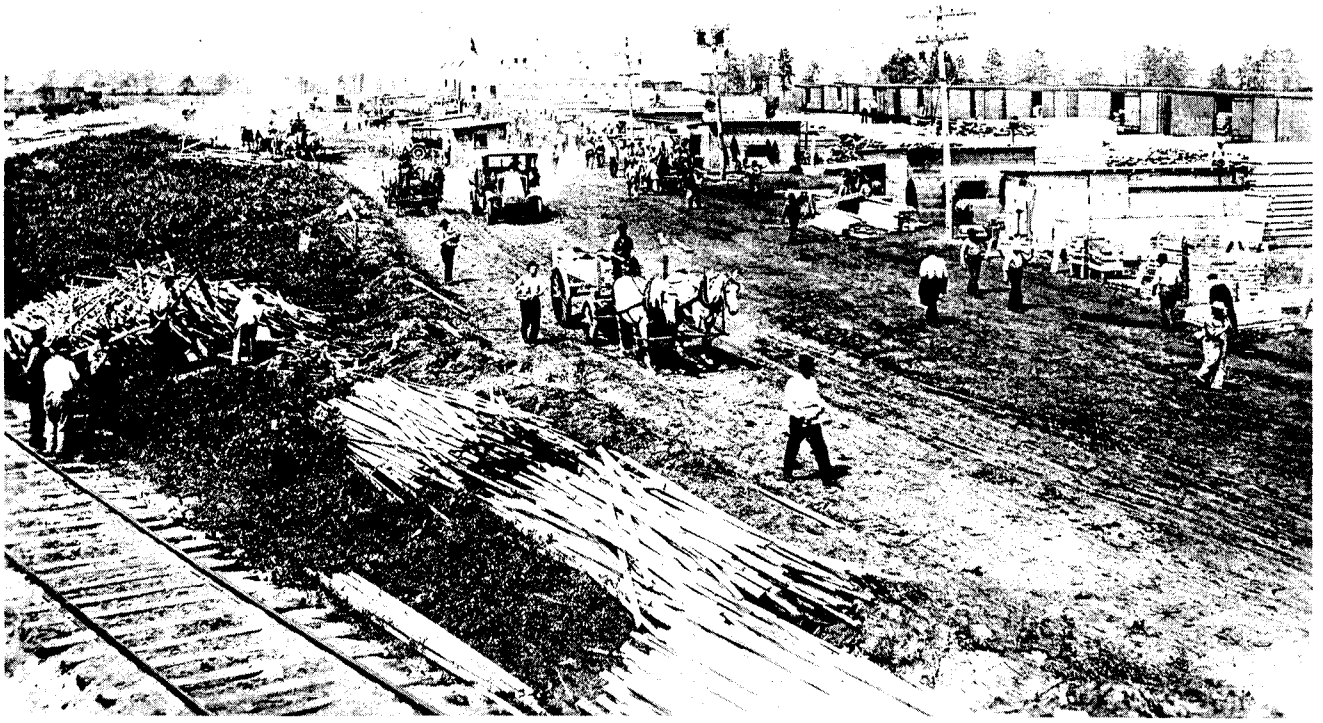
[29] Memo, with Incls, Actg CofS for TAG, 29 May 17. QM 020 (Constr) 1917.

[30] (1) *Blossom Report*, pp. 18–19. (2) Interv with Evan Shelby, 17 Aug 56; Interv with Frank M. Gunby, 15 Aug 56.

[31] (1) Min, Gen Mun Bd, 8 Jun 17, p. 29. (2) Hist of Constr Div, Exhibits, Part 3.

[32] Memo, Littell for TQMG, 14 Jun 17. QM 600.1 (Gen).

[33] (1) Memo, Starrett for Gen Mun Bd, 12 Jun 17. Hist of Constr Div, Book I. (2) Conv, Starrett with Clarkson, pp. 2528–31. (3) *War Department, Annual Reports, Report of the Chief of the Construction Division, 1918* (Washington, 1919), p. 59.



CAMP CUSTER, MICHIGAN, UNDER CONSTRUCTION, *1917*

protested that the papers had to go out that afternoon. Littell sat back a moment and then explained that he always read every word before he signed his name. Forty years in the Army had taught him to be cautious. To elucidate he told a story. Some years before, while he was serving in the Philippines, a halter for which he was accountable slipped off a mule and fell into a well. When efforts to retrieve it failed, Littell was ordered to make good the loss, $1.40. He refused. The debt still stood and he would have to pay it before he could retire. Signing Shelby's contracts, he shook his head; the old army, he observed, did things differently.[34]

As soon as agreements were executed, sometimes even before, contractors hastened to the job sites. On 13 June an advance party from Fred T. Ley & Company arrived at Ayer, Massachusetts, to start building Camp Devens, a cantonment for 30,000 men. The following day, Stone & Webster commenced work on Camp Travis, near San Antonio, Texas, and Irwin & Leighton began staking out Camp Dix, near Wrightstown, New Jersey. By July construction was in full swing at all sixteen cantonments. Land was cleared, roads graded, and railway spurs brought in with record speed. Barracks, mess halls, latrines, hospitals, and storehouses went up fast. At Camp Upton, near Yaphank, New York, Thompson-Starrett erected sawmills and turned out prefabricated

[34] (1) *Blossom Report*, p. 142. (2) Shelby Interv, 17 Aug 56.

building sections. Several other contractors adopted the same method. Even the installation of utilities, usually slow-moving work, went forward rapidly. Speed was virtually the only criterion. Where there was a question of time or money, contractors spent.[35]

Shortages of materials slowed progress occasionally but not for long. The first war agency to enter the market for construction supplies, the Cantonment Division made the most of its advantage. As fast as Gunby could complete bills of materials, Hamilton wired concerns all over the country, placing orders for wallboard, roofing, window glass, furnaces, and nails. He purchased lumber through lumber manufacturers' associations, which set up offices in Washington. The plumbing industry also established headquarters in the capital to assist Hamilton in his work. The demand for nails, pipe, and lumber soon outran supplies. By bringing pressure to bear on producers, substituting wood stave pipe for cast iron, and accepting green lumber, Hamilton managed to fill requirements. Daily, 30,000 tons of supplies moved to the sixteen job sites. When a shortage of freight cars developed, Captain Marshall, trading dollars for days, sent toilet fixtures south from New Jersey by Pullman.[36]

By mid-July 1917 an army of 160,000 workers was laboring to build the cantonments. Each project had a hastily assembled force of 8,000 to 14,000 men. Although trained electricians and plumbers were needed, the big job, carpentering, was mainly one of nailing boards together, and for that handy men sufficed. Pay was good. Under an agreement between Secretary Baker and Samuel Gompers, president of the American Federation of Labor (AFL), union wage scales and working rules applied on cantonment projects. Men worked overtime, Sundays, and holidays at time and a half or double time rates. There were no serious strikes. Supervision was often weak and organization inadequate. Results were obtained through sheer force of numbers. When one contractor said he could increase production 25 percent by doubling his work force, his CQM told him to go ahead.[37]

In the midst of the drive to complete the cantonments, Littell got orders to provide sixteen camps for the National Guard. The directive came on Friday, 13 July. The first contingent of the Guard would arrive on 1 August. At a Saturday conference, Gunby, Whitson, and several others took stock of the situation. The Guardsmen had tents, so they would not need barracks. The Guardsmen had field kitchens, so they would not need cook shacks. The Guardsmen had tools with which to dig latrines. Water would have to be provided for them. That, said Gunby, meant pipe, lots of pipe. He knew just the man to turn to for help. An important pipe manufacturer from Youngstown, Ohio, was in town that day. Gunby located this man on a golf course, called him into the office, and persuaded him to telephone Youngs-

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[35] (1) *Camp Devens, National Army Cantonment*, published by Fred T. Ley & Co, Inc., 1917. (2) *War Department, Annual Reports, Report of the Chief of Construction Division, 1918*, p. 59. (3) *Blossom Report*, pp. 116, 152.

[36] (1) *Blossom Report*, p. 133. (2) Benedict Crowell, *America's Munitions, 1917–1918* (Washington, 1919), pp. 536–37. (3) Marshall Interv, 11 Apr 57.

[37] (1) Memo, Littell for TQMG, 28 Nov 17. Hist of Constr Div, Book V. (2) QM 020 (Constr) 1917. (3) *Blossom Report*, p. 35.

TENTS AT CAMP WHEELER, GEORGIA, *1917*

town and start pipe moving south. By Monday CQM's were on their way to the job sites. On Tuesday and Wednesday Littell signed fifteen contracts. Before the week was out work was under way on ten of the camps; by the 25th all sixteen were building.[38]

At the thirty-two camp and cantonment jobs, contractors pushed furiously ahead, their eyes on the calendar. By mid-August accommodations were ready for 54,000 Guardsmen; by 1 September the camps could take 295,000. The "Guard business," said Gunby, was "the jewel of the whole thing."[39] Meanwhile, cantonment deadlines were being met. Housing for 287,300 draftees was ready on 4 September. Considerable work remained when the troops moved in, but no soldier went without a bed. From September on, construction ran ahead of schedule. More than a million men were housed by late 1917.[40]

The cost totaled $179,478,978,

[38] (1) Memo, Chief WCD GS for CofS, 9 Jul 17. AG 2619836. (2) Memo, Actg CofS for TAG, 13 Jul 17. Hist of Constr Div, Book I. (3) Gunby Interv, 15 Aug 56. (4) Min, Gen Mun Bd, 13, 16, 17, 24 Jul 17. (5) *Blossom Report*, pp. 111, 143.

[39] (1) Memo, Littell for TQMG, 26 Aug 17. Hist of Constr Div, Book III. (2) *Blossom Report*, p. 143. (3) Gunby Interv, 15 Aug 56.

[40] (1) Memo, Littell for Chief Admin Div OQMG, 23 Aug 17. (2) Rpt, Canton Div, n.d., sub: Tps Housed at NA Cantons on 4 Sep 17. Both in Hist of Constr Div, Book III. (3) *Report, Chief of the Construction Division, 1918*, p. 39.

TABLE 1—NATIONAL ARMY CANTONMENTS, 1917

Name of Camp	Location	Contractor	Capacity	Total Cost	Cost per Capita
Total National Army	.....	.....	654,786	$140,726,472	$214.92
Custer	Battle Creek, Mich.	Porter Bros.	34,045	8,700,000	255.54
Devens	Ayer, Mass.	Fred T. Ley & Co.	35,288	9,727,145	275.64
Dix	Wrightstown, N.J.	Irwin & Leighton Co.	41,309	9,623,067	232.95
Dodge	Des Moines, Iowa	Weitz & Son	40,526	6,815,519	168.17
Funston	Fort Riley, Kans.	George A. Fuller Co.	41,564	8,799,535	211.71
Gordon	Atlanta, Ga.	Arthur Tufts Co.	39,796	7,483,002	188.03
Grant	Rockford, Ill.	Bates & Rogers	41,309	8,517,233	206.18
Jackson	Columbia, S.C.	Hardaway Construction Co.	42,498	8,731,187	205.45
Lee	Petersburg, Va.	Reinhart & Dennis	45,512	11,300,000	248.28
Lewis	American Lake, Wash.	Hurley & Mason Co.	44,685	7,007,235	158.38
Meade	Annapolis Junction, Md.	Smith, Hauser & MacIsaac	41,309	10,500,000	254.16
Pike	Little Rock, Ark.	James Stewart & Co.	42,347	9,015,565	212.89
Sherman	Chillicothe, Ohio	A. Bentley Co.	38,393	9,620,075	250.57
Travis	Fort Sam Houston, Texas	Stone & Webster	41,353	6,717,176	162.43
Upton	Yaphank, L.I., N.Y.	Thompson-Starrett Construction Co.	40,913	11,128,341	272.00
Zachary Taylor	Louisville, Ky.	Mason & Hanger Co.	43,939	7,041,392	160.25

Source: Canton Div, Total Estimated Cost for Constr of National Army Cantons, 1917. EHD Files.

TABLE 2—NATIONAL GUARD CAMPS, 1917

Name of Camp	Location	Contractor	Capacity	Total Cost	Cost per Capita
Total National Guard	.....	.....	438,042	$38,752,506	$ 88.32
Beauregard	Alexandria, La.	Stewart-McGhee Construction Co.	27,152	2,648,982	97.56
Bowie	Fort Worth, Texas	J. W. Thompson	27,152	2,305,402	84.92
Cody	Deming, N. Mex.	J. W. Thompson	27,152	2,610,443	96.14
Doniphan	Fort Sill, Okla.	Seldon-Brack Construction Co.	27,152	2,331,802	85.88
Fremont	Palo Alto, Calif.	Lindgren & Co.	27,152	1,988,729	73.24
Greene	Charlotte, N.C.	Consolidated Engineering Co.	27,152	3,246,793	119.58
Hancock	Augusta, Ga.	T. P. Brown & Son	27,152	2,048,571	75.45
Kearney	Linda Vista, Calif.	W. E. Hampton & Co.	27,152	2,977,088	109.65
Logan	Houston, Texas	American Construction Co.	27,152	1,963,058	72.30
McClellan	Anniston, Ala.	J. O. Chisholm & Co.	27,152	3,258,278	120.00
MacArthur	Waco, Texas	Fred. A. Jones Construction Co.	27,152	1,974,375	72.72
Sevier	Greenville, S.C.	Gallivan Building Co.	27,152	1,871,440	68.92
Sheridan	Montgomery, Ala.	A. Blair	27,152	1,915,056	70.46
Shelby	Hattiesburg, Miss.	T. S. Moudy & Co.	30,762	3,289,825	106.94
Wadsworth	Spartansburg, S.C.	Fisk, Carter Construction Co.	27,152	2,187,327	80.56
Wheeler	Macon, Ga.	W. Z. Williams Co.	27,152	2,135,337	78.64

Source: Canton Div, Total Estimated Cost of Camp Constr, 1917. EHD Files.

BARRACKS AND LAVATORIES, CAMP DIX, NEW JERSEY

$140,726,472 for the National Army cantonments and $38,752,506 for the National Guard camps. The average per capita costs were $215 and $88, respectively. (*Tables 1 and 2*) To builders of the cantonments, the Army paid $4,000,000 in fees, or 2.84 percent of the total cost. Every one of these contractors received the maximum fee of $250,000, a sum less than would have been earned under straight cost-plus-a-percentage agreements. Proportionately the fees for camp construction were higher, amounting to $2,638,524, or 6.8 percent of the total cost. Because none of these contractors had attained the maximum fee, their earnings represented straight percentages of cost.

Huge quantities of materials and prodigious efforts had gone into construction. Close to 1 billion board feet of lumber, 80 million square feet of roofing paper, 34 million square feet of wall board, 1 million feet of wood stave pipe, 468,000 feet of cast iron pipe, 105,000 kegs of nails, and 314,000 barrels of cement had been purchased for the cantonments alone. A total of 105,358 freight cars had been used to haul materials to the 32 mobilization projects.[41] A total of 212,172 workmen had been employed—an average of 8,400 at each of the cantonments and of 2,750 at each of the camps. It was the largest force of construction labor ever assembled in the United States.

The training centers for the National Army and the National Guard were veritable cities, complete with roads, walks, power lines, and water systems. The largest of the cantonments, Camp

[41] Incl with Memo, Littell for TQMG, 28 Nov 17. Hist of Constr Div, Book V.

Lee, Virginia, accommodated 45,512 men; the smallest, Camp Custer, Michigan, 34,045. Each of the tent camps held a Guard division of 27,152, except Camp Shelby, which housed 30,762. Nearly all the comforts of large urban communities were provided for the troops—hospitals, infirmaries, bakeries, laundries, theaters, clubhouses, gymnasiums, and more. In the cantonments, troops lived in 250-man barracks, heated by steam or warmed by stoves, with modern lavatories nearby. Guardsmen were quartered in snug, floored tents, equipped with stoves or heaters. Their sanitary facilities, though crude, were adequate. Never before had American soldiers been so well housed in wartime.

Contemporaries marveled at the speed with which this vast undertaking was accomplished. Historians agreed that construction of the camps and cantonments in so short a time "constituted one of the great achievements of the mobilization effort" in 1917.[42] In the words of Frederic L. Paxson, "It was a triumph of skill and energy to have the camps as nearly ready as they were; a triumph for W. A. Starrett of the Emergency Construction Committee and Brigadier-General I. W. Littell of the Quartermaster Corps."[43]

Centralization

In the spring and summer of 1917, while Littell's division was building camps and cantonments, other military construction programs were starting under different auspices. Soon after the declaration of war, the Corps of Engineers began work on several depots and an office building; the Signal Corps began construction of a dozen schools for training pilots and technicians; and no fewer than five divisions of the Ordnance Department began erecting facilities for their own use. Competition for labor and materials caused trouble. Lack of uniformity in contracting methods encouraged builders to play one agency against another. The arrangement was illogical and uneconomical. As the camps and cantonments neared completion, and the work for which Littell's organization had been created was concluded, the Starrett committee proposed that all Army construction be placed under the men who had performed so well in meeting mobilization deadlines.

On 5 October 1917, upon the committee's advice, Secretary Baker ordered all military construction except fortifications, centralized in the Cantonment Division. On the 10th he transferred The Quartermaster General's organization for maintenance and repair, together with its chief, Maj. Charles O. Zollars, to the Cantonment Division.[44] Early in November Capt. Charles D. Hartman, a 1908 West Point graduate who had recently joined the Quartermaster Corps, became Zollars' assistant. Hartman's debut as a construction officer marked the beginning of an active career that would span nearly a quarter century. Under him and Zollars, main-

[42] Lt. Col. Marvin Kreidberg and 1st Lt. Merton G. Henry, *History of Mobilization in the United States Army, 1775–1945*, DA Pamphlet 20–212 (Washington, 1955), p. 311.

[43] Frederic L. Paxson, *America at War 1917–18* (Boston: Houghton, Mifflin Company, 1939), p. 107.

[44] (1) Ltr, TAG to TQMG, 5 Oct 17. QM 020 (Constr) 1917. (2) OQMG Office Order 106, 10 Oct 17.

tenance and repair meshed smoothly into the work of the Cantonment Division. But other construction activities remained where they were, in the Ordnance and Engineer Departments and in the Signal Corps.

Baker's centralization order met stiff resistance. The Chief Signal Officer asked for a blanket exemption. Writing to the Chief of Staff on 15 October, he argued that the Signal Corps construction program was closely tied in with production of planes and training of flyers. Howard E. Coffin, the Detroit industrialist who headed the Aircraft Production Board, opposed making a change. Swayed by these men, Baker gave ground. On the 20th he agreed to study the matter thoroughly and to poll the other bureau chiefs affected by his order. Until then, he advised Coffin, the Signal Corps would continue to build.[45]

Early in December representatives of the Cantonment Division, the Corps of Engineers, the Signal Corps, the Ordnance Department, and the Starrett committee met to try to reconcile their differences. Two plans were offered for discussion. Under the first, the various services would continue to build; the Starrett committee would co-ordinate their efforts. The second plan called for strict adherence to Secretary Baker's 5 October order. After two days of debate, the conferees were hopelessly deadlocked. The Engineers, the Signal Corps, and the Ordnance Department held out for the first plan; the Cantonment Division and the Starrett group, for the second. On 8 December Starrett informed the General Staff that efforts to reach an agreement had failed.[46]

Meanwhile, the tide was turning in favor of centralization. During October Starrett, Tuttle, and Marshall persuaded one of Baker's advisers that a centralized construction agency would be "in the public interest" and in conformance with "sound business principles."[47] In November Benedict Crowell, a former partner of Lundoff, became Assistant Secretary of War. Crowell joined the members of the Starrett committee in urging Baker to abide by his first decision. On 22 December the Secretary announced that his order of 5 October would stand.[48]

During the fall of 1917, Littell took steps to strengthen the Cantonment Division for larger tasks ahead. A number of changes appeared to be necessary. More men with experience in industrial construction would have to be recruited. To push the new program to completion, the division would need all of the powers and authorities given to it by the Secretary back in May, plus some new ones. On 9 October, the day he became a brigadier general, Littell asked Baker for authority to communicate directly with bureau chiefs, to commission civilians, to promote his principal assistants, and to make certain adjustments in his organization. The Secretary referred the matter to Maj. Gen. John

[45] (1) Memo, Actg CSigO for CofS, 15 Oct 17. (2) Ltr, Coffin to WDGS, 20 Oct 17. Both in Hist of Constr Div, Book I.

[46] (1) Memo, Gunby for Starrett, 6 Dec 17. Hist of Constr Div, Book III. (2) Memo, Starrett for Col P. E. Pierce, WDGS, 8 Dec 17. CE Doc 115946. (3) Memo, Starrett for Maj W. W. Taylor, WDGS, 8 Dec 17. QM 020 (Constr) 1917.

[47] Memo, Stanley King for Baker, 26 Oct 17. Hist of Constr Div, Book I.

[48] Memo, OCofS for TAG, 22 Dec 17. OCS 6374–333.

Biddle, an Engineer officer who was Acting Chief of Staff.[49]

Littell's requests involved him in an acrimonious dispute with Biddle, for the two men held conflicting views about the Cantonment Division. Littell regarded his organization as a special outfit, responsible only to the Secretary. Biddle, on the other hand, looked upon the division as a subordinate element of the Quartermaster Corps; and he felt that Littell's proposals ought to be considered in the light of overall Quartermaster organization and policies. On one occasion, Biddle warned Littell that he could not continue to bypass his superior officer, The Quartermaster General. Early in January 1918, Biddle turned the problem over to the newly appointed Acting Quartermaster General, Maj. Gen. George W. Goethals, the Engineer officer acclaimed as the builder of the Panama Canal.[50]

To Goethals the solution was obvious—place all military construction under the Corps of Engineers. He gave no reason for his recommendation, perhaps feeling that none was necessary.[51] However, others believed some explanation was required. In a study of Goethal's proposal undertaken at Baker's request, Col. Daniel W. Ketcham of the War Department General Staff pointed out that efforts to transfer construction from the Quartermaster Corps to the Corps of Engineers had been made in the past, but that arguments advanced in favor of the change had "never been strong enough to prevail." A shift in responsibility, Ketcham argued, should be made only after conclusive evidence had been presented that gains in efficiency or economy would offset time lost in reorganization and readjustment. Goethals had offered no such evidence. In Ketcham's opinion, the Cantonment Division was doing a splendid job. To make "unnecessary changes in personnel, organization, and methods" in the midst of war, he concluded, "would be a grave mistake."[52]

The Cantonment Division was in serious trouble. Even if Goethals' maneuver failed, the division faced the prospect of working under an officer who favored its absorption by the Corps of Engineers. Recognizing that they had an impossible situation on their hands, Baker and Crowell acted to remove Littell from Goethals' jurisdiction. To a War Department order of 9 February 1918 dealing with the organization of the General Staff they added a paragraph charging the Operations Division with "the supervision and co-ordination of camp sites, cantonments, army posts, hospitals, sanitation, construction plans and projects as the same relate to all branches of the Army."[53]

Littell was unaware of this development. He received no copy of the War Department order and had no inkling of its content. Testifying on 11 February before the Senate Committee on Military Affairs, he said he expected the worst:

> Senator Chamberlain. Are you building for the Signal Corps in addition to the work of construction that is in hand?

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[49] Memo, Littell for Baker, 9 Oct 17. QM 020 (Constr) 1917.

[50] OCS 10394.

[51] Memo, Goethals for Baker, 16 Jan 18. OCS 10394–6.

[52] Memo, Ketcham for CofS, 23 Jan 18. OCS 10394–6.

[53] WD GO 14, 9 Feb 18.

General Littell. We have taken over their work.

. . . . . .

Senator Chamberlain. When was that order issued?

General Littell. That was October 5.

. . . . . .

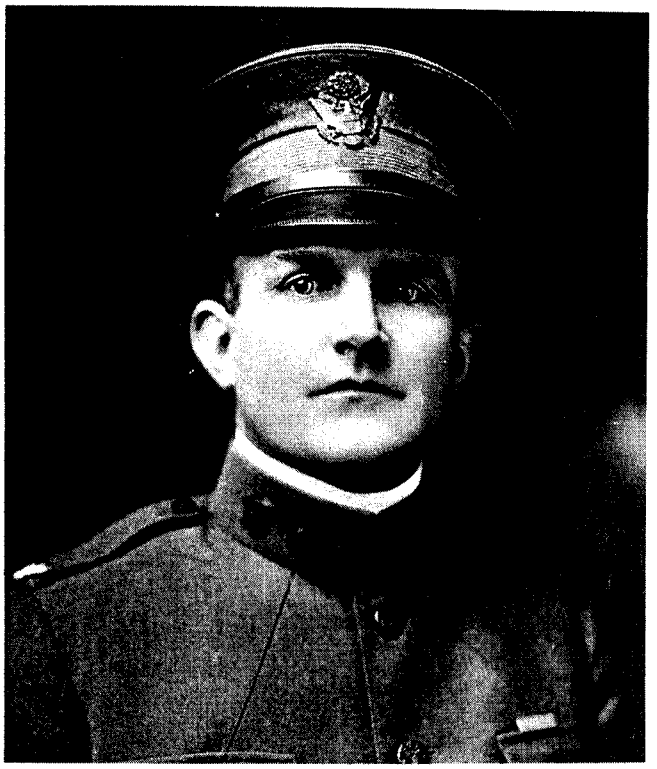
Senator Chamberlain. Is there not a more recent order that takes the construction work from you and turns it over to the Engineering Department?

General Littell. That is in contemplation, as we hear it.

Senator Chamberlain. You have not got an order?

General Littell. We have been told that the Cantonment Division would be transferred to the Engineer Corps.[54]

The next morning Littell was back on the Hill for another session with the committee, when his long military career ended abruptly. At Crowell's direction, orders were cut retiring Littell and naming Marshall his successor. The reasons for Littell's relief were obscure. Later, some pointed a finger at Goethals; others, at Starrett. Reportedly, Marshall once styled himself the "self-appointed" Chief of Construction.[55] To the members of the Cantonment Division, the dynamic and aggressive "Puck" Marshall presented a sharp contrast to the gentle-hearted Littell. The cousin of a former Chief of Engineers and a personal acquaintance of Secretary Baker, Marshall knew his way around the War Department.[56] The aging and kindly Littell had to step aside for the politically astute young officer.



GENERAL MARSHALL.
(*Photograph taken in 1918.*)

The effects of Colonel Marshall's leadership were soon apparent. A War Department order of 13 March 1918 changed the name of the organization to the Construction Division of the Army and allotted it 1,407 officers and 1,137 civilian employees.[57] On 19 April Marshall reorganized the division, created several new branches, and made changes in personnel. (*Chart 1*) With Crowell's backing, he took on additional duties. On 10 April the Construction Division became responsible for preparing plans, specifications, and estimates for all military construction projects. Encroaching on the jurisdiction

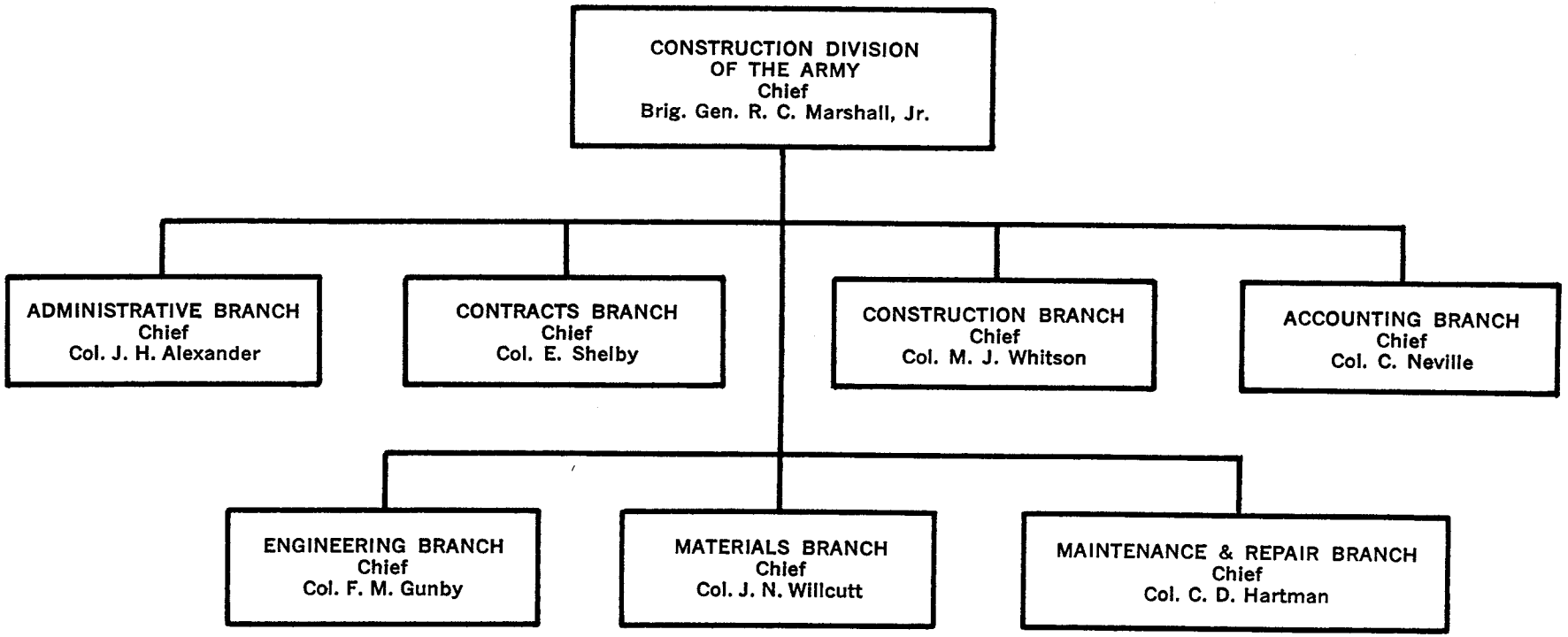
[54] S Comm on Mil Affs, 65th Cong, 2d sess, *Hearings, Investigation of the War Department*, Part 4, p. 2405.

[55] (1) Memo, Biddle for TAG, 12 Feb 18. OCS 10394–10. (2) Intervs with Col L. C. Ritchie, 26, 27 Apr 56; Shelby Interv, 17 Aug 56. (3) H Rpt 816, 66th Cong, 2d sess, 1 Apr 20. (4) Interv with Mrs. Mary B. Pagan, 8 Mar 57.

[56] Gunby Interv, 15 Aug 56; Marshall Interv, 11 Apr 57.

[57] Ltr, TAG to OIC Canton Div, 13 Mar 18. QM 020 (Constr) 1918.

Chart 1—Organization of Construction Division of the Army April–November 1918



Source: Orgn Charts, Constr Div of the Army, 1918. EHD Files.

of the Corps of Engineers, Marshall undertook construction in the theater of operations—three meat storage and ice-making plants in France.[58]

Recognizing the defects in current contracting methods, Marshall adopted a new form of emergency agreement. Although contracts used during the first ten months of the war had in every case fixed a maximum allowable fee, there still existed an incentive for unscrupulous contractors to increase costs to the point that gave them the largest allowable profits. Since a contract under which contractors made the most money when costs were high was obviously not to the government's advantage, the use of percentage contracts was discontinued in February 1918, when Marshall switched to an arrangement very like the cost-plus-a-fixed-fee (CPFF) contract of World War II. Fees were henceforth based on original estimates rather than on actual costs. The new method had all the speed of percentage contracting but avoided offering rewards for inefficiency and extravagance.[59]

Beginning in the spring of 1918, Marshall had to devote more and more of his energies to fending off attacks on the division. About the first of May a disturbing rumor reached him: a paragraph calling for the transfer of the Construction Division to the Corps of Engineers had found its way into the Army appropriation bill then before the House Committee on Military Affairs. Marshall immediately conferred with Crowell and the new Chief of Staff, Maj. Gen. Peyton C. March.[60] When the news reached him, Secretary Baker tried to have the passage deleted. Appearing before the committee on 6 May, March declared that the Secretary was perfectly satisfied with the existing arrangement for construction. And so was he. "If there is any legislation in the appropriation bill relating to this subject in connection with the Engineer Corps," said March, "we want it stricken out."[61] The bill reported out by the committee contained no such provision.

Marshall lost no time in striking back. On 16 May, at his prompting, Senator Harry S. New of Indiana introduced a bill to create a permanent construction corps. The proposed corps would be headed by a major general and staffed by 570 officers, two-thirds of whom would be drawn from the officers of the present division. But the bill went further, for Marshall had included a provision to take rivers and harbors work away from the Engineers and assign it to the new Construction Corps.[62] The bill went to the Committee on Military Affairs, which forwarded the measure to the War Department.

The task of commenting on the bill fell to Brig. Gen. Lytle Brown, director of the War Plans Division of the General Staff and an Engineer officer. On 29 May, Brown wrote General March: "Consideration of this measure might lead to the belief that it is a scheme for making permanent provision for certain officers who have received temporary commissions in the Construction Corps and in this respect seems to be largely a plan for personal preferment." He found

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[58] (1) Ltr, TAG to OIC Constr Div, 10 Apr 18. Hist of Constr Div, Book I. (2) *Blossom Report*, p. 302.

[59] *Blossom Report*, pp. 192–93.

[60] Marshall Interv, 11 Apr 57.

[61] H Comm on Mil Affs, 66th Cong, 2d sess, *Hearings on Army Appropriation Bill, 1919*, vol. 2, pp. 27–28.

[62] 56 *Cong. Rec.* 6575.

the portions of the bill that dealt with the Engineers' civil functions particularly objectionable. "The War Plans Division," Brown protested, "is of the opinion that it is beyond the power of the human mind to solve in time of war, a question which pertains to a basis of peace." He drafted, and on 15 June Secretary Baker signed, a letter to the committee chairman opposing the bill.[63]

Senator New's measure posed a dire threat to the Corps of Engineers. For more than forty years a group within the construction industry had labored to consolidate all federal construction, including rivers and harbors work, into one government department. Men identified with this movement dominated the Starrett committee and the Construction Division of the Army. Leagued with them was Assistant Secretary of War Benedict Crowell. To Maj. Gen. William M. Black, the Chief of Engineers, the bill appeared to be part of a fine-spun plot which was beginning to unfold. The time for a showdown had come. The Engineers had either to crush the separate corps or to risk being crushed by it.

On 27 May, Black tried to persuade the Chief of Staff that the Construction Division should be turned over to the Corps of Engineers. He reminded March that the Corps had done construction of every type in discharging its military and civil duties. "Since the outbreak of war," he pointed out, "in the United States it has constructed the first complete system of embarkation points the Army now possesses . . . and is now in charge of all construction work of all character in France." Many Engineer Reservists were members of the Construction Division. "I now find that the continued separation of the Construction Department has resulted in embarrassment to this Department . . . . ," Black informed March. In conclusion, he declared:

> Difficulties would disappear were the Construction Department made a part of the Engineer Department and placed under the control of the Chief of Engineers. There would be need for but one purchasing department. Since there is a great variety in the work now assigned to the Construction Department as well as to the Engineer Department, the best experts for any particular class of work could be selected from either department were the Construction Department under the control of the Engineer Department, and the number of experts required reduced. Without a doubt, an increased efficiency and economy would result. The present organization is anomalous, and the Construction Department really now constitutes an independent bureau of the War Department. It is submitted that the existing conditions are not those compatible with good organization and greatest efficiency.[64]

March sent Black's proposal to the Construction Division the following day.

Replying on 6 June, Marshall attempted to refute Black's arguments. The Engineers had not built the embarkation depots, he declared; credit for that accomplishment belonged to Cantonment Division. Moreover, the Engineers had detailed only nine Reservists to him and Littell. Marshall dismissed Black's statement about competition by saying that there was none. He argued that a tradition-bound military organization could not be effective in a war situation. Engineer officers

[63] (1) Memo, Brown for March, 29 May 18. (2) Ltr, Baker to Chm S Comm on Mil Affs, 15 Jun 18. Both in OCS 10394–14.

[64] Memo, Black for March, 27 May 18. Hist of Constr Div, Book II.

"accustomed to the usually slow-progressing and permanent work of fortifications, military roads, and river and harbor improvements" were too inflexible to cope with emergency conditions. The Construction Division had what the Corps of Engineers lacked: top-notch men, unhampered by tradition and unfettered by red tape and military protocol. The division and the using services were working as a team. "To change or substitute for this teamwork spirit, the necessarily fixed ideas and strivings for perfection of an older department," Marshall warned, "would result in those conflicts of ideas and long drawn out discussions which have produced such adverse results in some of the other governmental activities."[65]

Marshall lined up powerful support. He went first to Crowell, who agreed to throw the weight of his influence behind the Construction Division. Marshall then took up Black's proposal with the Chief of Staff and the Secretary. March was against it, and so was Baker, who wanted no further changes in the wartime construction setup.[66] On 14 June The Adjutant General issued a terse order: "The Secretary of War disapproves the recommendation for the transfer of the Construction Division to the Engineer Department."[67] Two weeks later Baker raised Marshall to one-star rank. Henceforth the Chief of Construction was known to his comrades as "General Puck."

The struggle between Marshall and the Engineers was just beginning. In August 1918, General Goethals, who had been named director of the Purchase, Storage and Traffic Division (PS&T) of the General Staff, submitted a plan for reorganizing the Army's supply system, which put construction under PS&T. March approved the plan except the part dealing with construction. An attempt by Crowell and Marshall to make the Construction Division permanent by means of an Executive Order failed when Baker withheld approval.[68] Two months later, Marshall learned that Goethals had centralized many of the Army's procurement and fiscal activities. Indications were that the supply and finance functions of the Construction Division would soon go to PS&T. Marshall and his associates considered the idea preposterous. Building materials could not be divorced from building operations. Writing to the Chief of Staff on 2 November 1918, Marshall stated:

> Construction consists of the complete functions necessary for delivering at the site of a project materials and labor and [for] organizing, inspecting, accounting and paying for the same . . . . To omit any of these functions in a construction operation would produce a decided destructive effect upon a construction program. The loss of time and money would be too great to permit of using the word "organization" in connection with it.[69]

Nine days later the war ended.

Under Marshall's direction, the Construction Division had compiled an impressive record. At the time of the armistice, shelter for approximately 1,736,000 men had been provided at 32 camps

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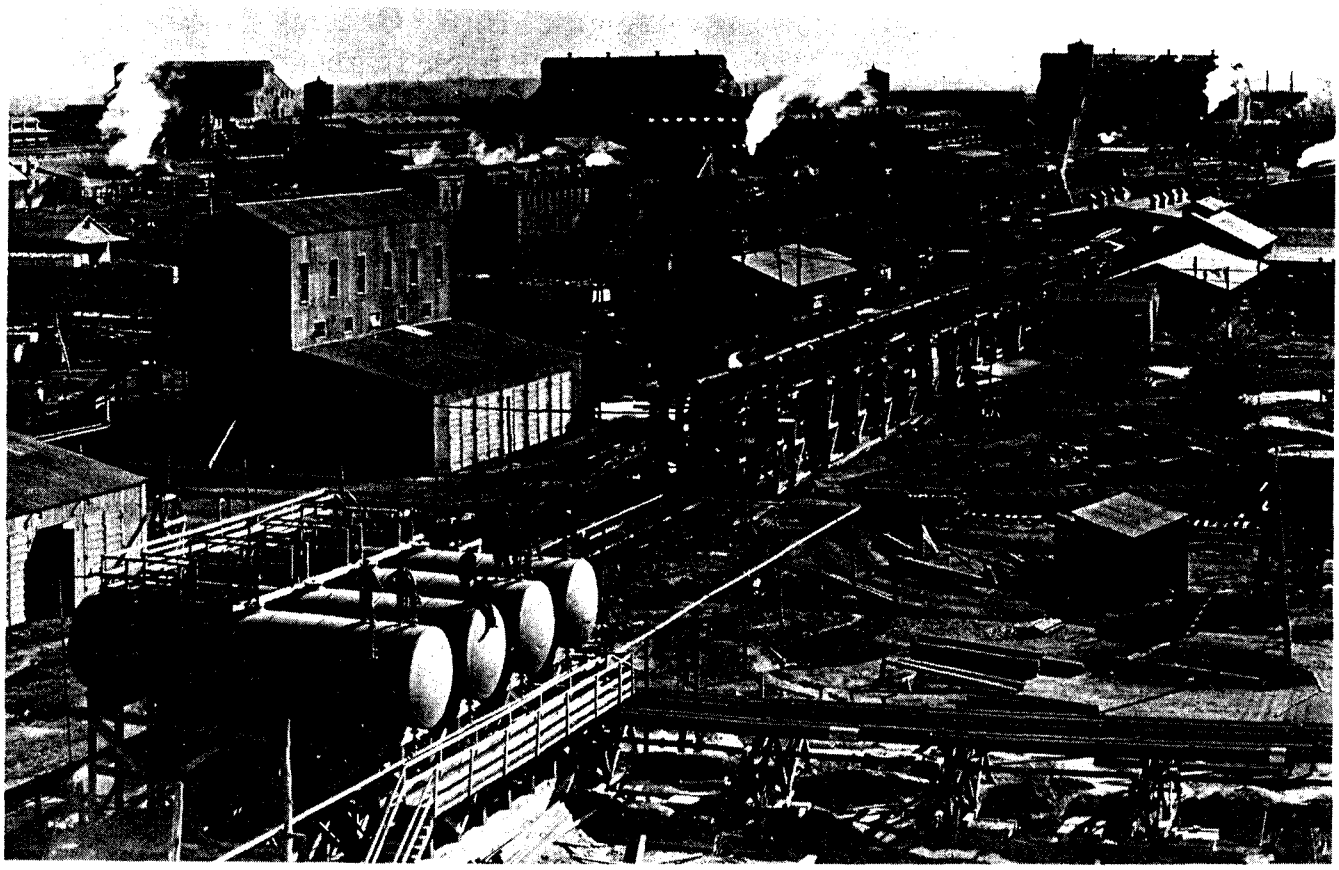
[65] Memo, Marshall for March, 6 Jun 18. Hist of Constr Div, Book II.

[66] Marshall Interv, 11 Apr 57.

[67] Ltr, TAG to OIC Constr Div, 14 Jun 18. QM 600.1 (1918–41).

[68] (1) Memo, March for Goethals, 26 Aug 18. (2) Memo, Marshall for Crowell, 2 Aug 18. Both in QM 600.1 (1918–41).

[69] Memo, Marshall for March, 2 Nov 18. QM 600.1 (1918–41).



OLD HICKORY POWDER PLANT, TENNESSEE, *nearing completion, 1918.*

and cantonments, 4 ports of embarkation, 22 special training centers, and numerous other posts and stations. In addition, work was completed, or nearly so, on 77 airfields, schools, and other facilities for the Division of Military Aeronautics; 49 base and 40 general hospitals for the Medical Corps; 30 supply bases and depots for the Quartermaster Corps; and 95 munitions plants and depots for the Ordnance Department and the Chemical Warfare Service. The program included 581 projects with a total cost of approximately $1 billion.[70]

To many in a position to observe its performance, the Construction Division was an effective organization, one worthy of praise and preservation. To others, it was an anomaly within the War Department, a reprobate outfit, and a proper subject for Congressional inquiry.

Congress Investigates

Senator Kenneth D. McKellar of Tennessee led the attack on what he called the "remarkable system" under which the camps and cantonments were built. Addressing the Senate on 17 July 1917, McKellar denounced extravagance and corruption in the construction program. An investigation of four cantonment projects had convinced him that cost-plus contracts were not in the public interest and that contractors were far more concerned with obtaining high fees

[70] (1) *War Department, Annual Reports, Report of the Chief of the Construction Division, 1919* (Washington, 1920), p. 64. (2) *Blossom Report*, p. 268.

than with saving tax dollars. Vast sums of money were being squandered. Construction costs were soaring out of sight. Moreover, McKellar charged, favoritism had entered into the selection of contractors. He identified Starrett with the George A. Fuller Company, contractors for Camp Funston, and with the Thompson-Starrett Company, contractors for Camp Upton. He stated that associates of other camp contractors were serving with the Committee on Emergency Construction and the Cantonment Division. Inveighing against big business, the Senator declared that the construction program was being run for the benefit of a few large corporations.[71]

Although other legislators soon joined McKellar in condemning the conduct of the building program, some months elapsed before Congress launched a formal inquiry. In December 1917 the Senate Military Affairs Committee, of which McKellar was a member, began an investigation of the mobilization effort. Speaking at a rally of the National Security League in New York City during January 1918, Chairman George E. Chamberlain revealed the committee's attitude: "The Military Establishment of America has fallen down. . . . It has almost stopped functioning . . . because of inefficiency in every bureau and in every department of the Government of the United States."[72] Two days later he introduced a bill to take direction of the war out of the President's hands and to vest it in a war cabinet. The committee endeavored to show why such a bill was necessary. Consuming fifteen weeks and producing 2,500 pages of testimony, its hearings told a story of failure and abuses.[73] In the rash of sensational headlines which emanated from the inquiry, construction had a prominent place.

Appearing before the committee in February 1918, the top men in the construction program were confronted by Senator McKellar in the role of principal interrogator. Hinting at conspiracy and collusion, McKellar subjected the witnesses to exhaustive questioning. Were all thirty-two camps and cantonments built under cost-plus contracts? Who was responsible for adopting the cost-plus system? Were not the fees enormous for three months' work? Who had selected the contractors? What were Starrett's connections with these firms? Was not his brother Paul head of George A. Fuller? Who were the stockholders in Thompson-Starrett? How many construction men had come into the government in order to feather their nests and those of friends and relatives? The examination continued for two full days—Littell, Starrett, Marshall, Gunby, Whitson, and Willcutt testified in turn—as McKellar sought to uncover a plot to mulct the government.[74]

Denying imputations of wrongdoing, the accused put up a vigorous defense. Starrett had severed connections with the Fuller Company of which his brother was president some years before; he had no interest in Thompson-Starrett or any other company which had received an emergency contract. Contractors had been chosen solely for their ability to

[71] 55 *Cong. Rec.* 5181ff.

[72] Quoted in Paxson, *America at War*, p. 216.

[73] *Ibid.*, 211–12, 216–23.

[74] S Comm on Mil Affs, 65th Cong, 2d sess, *Hearings, Investigation of the War Department*, Part 4, 11 and 12 Feb 18, *passim.*

construct a camp or cantonment within the time allotted. All selections had been approved by the responsible heads of the War Department and by the General Munitions Board. The emergency agreement had fully protected the public interest. Fees were lower than those usually paid for comparable work. Upholding the men from industry, Littell and Marshall emphasized the record of accomplishment. McKellar's allegations were not proved.[75] Nevertheless, the man in the street was inclined to believe that where there was such dense smoke, there must be some fire.

In response to criticism of the emergency construction contract, Acting Secretary Crowell asked that a study be made "to see if some better method of executing this work could be followed." At Marshall's invitation, a distinguished group of men formed a committee to advise the Construction Division "as to methods for future work." Members included John R. Alpine, representing the AFL; Frederick L. Cranford, president of the New York Association of Contractors; Charles T. Main, president of the American Society of Mechanical Engineers; John L. Mauran, president of the American Institute of Architects; Robert G. Rhett, president of the U.S. Chamber of Commerce; and Professor Arthur N. Talbot, president of the American Society of Civil Engineers.[76] Reporting to Marshall on 15 March 1918, this panel endorsed the agreement drawn up by the Starrett committee. In their opinion, no other form of contract could meet the conditions imposed by the emergency. They summed up their conclusions:

> This scheme appeals to the committee as possessing one qualification which must commend it to all thinking men—it permits starting actual work weeks and even months before the details are completely worked out and delineated and permits the Government to push the job at any speed it may elect, changing at will its plans and scope, but paying only what the work actually costs plus a fee which is so reasonable as to be above the reach of fairminded criticism.[77]

This stamp of approval, though widely publicized, failed to have the desired effect.

Through the remaining months of war, criticism of the program mounted. Rare indeed was the Senator or Representative who could not produce a sheaf of letters from constituents, telling about discrimination in the award of contracts, inordinate waste of materials, outrageous wages, idling on the jobs, and other scandalous conditions. "Camp Contracts Given Big Firms Only, Is Charge" was front-page news. Magazine articles appeared bearing such titles as "Evils of Cost-plus Contracts." Amid the general outcry, bills were introduced to outlaw percentage contracts and demands were heard for fresh investigations.[78] The halls of Congress rang with angry declamations. "Worse than scandal" was the pejorative comment of Senator Porter J. McCumber on "the building of all of our cantonments." Senator William H. King called upon his colleagues "to give the small contractors a chance to get into the game"

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[75] *Ibid.*

[76] Memo, Marshall for Comm to Review Emergency Contract, 14 Mar 18. Hist of the Constr Div, Part 3.

[77] Ltr, Comm to Marshall, 15 Mar 18. Hist of the Constr Div, Part 3.

[78] (1) New York *World*, August 20, 1918, p. 1. (2) P. Morse in *Forum*, August 7, 1918, pp. 60, 200. (3) 56 *Cong. Rec.* 5858ff., 7245, 7264, 7930, 4355.

and "to rescue the business of the country from a few enormous corporations and trusts." In the House, Representative Daniel R. Anthony, Jr., declared that "adoption of the cost-plus system" had "led to a veritable riot of waste and extravagance."[79] And Representative John C. McKenzie, an outspoken foe of construction "grafters," drew applause for the following remarks:

> When war comes, like snakes in the grass you can see their heads coming up everywhere looking for an opportunity to rob their Government. O God, grant that such may not be the opportunity they may have, and may God pity each and every one of them and damn each and every one of them forever.[80]

In July 1918, amid crescendoing complaints, Assistant Secretary Crowell called into being the Board of Review of Construction.[81] Appointed to review the work, record the facts, and apply the lessons of the wartime building effort were three respected figures in the industrial and financial world: Chairman Francis Blossom was a partner in Sanderson & Porter, one of the country's leading engineering firms; W. Sanders Davies was president of the American Institute of Accountants; Charles A. Morse headed the American Railway Engineering Association. Begun in September 1918, the board's investigation continued for almost a year. Scores of persons testified—officers of the Construction Division, members of the Starrett committee, heads of contracting firms, chiefs of using services, and many more. Records came in for careful scrutiny. In the course of their inquiry, Blossom and his colleagues visited some fifty projects, where they questioned constructing quartermasters, engineers, contractors, auditors, superintendents, foremen, and workmen. In August 1919, they submitted their report to Crowell.[82]

The Blossom board gave the program a clean bill of health. Adoption of the emergency contract was fully justified. No other form of agreement could have produced the required results. Fees paid contractors were "exceedingly low as compared with the fees paid on prewar private construction."[83] There was no evidence to support charges of favoritism in making awards. There had been no profiteering. The high cost of the work was due to abnormal conditions, not to inefficiency or mismanagement. True, economy had been sacrificed for speed. But, said the board, "If the completion of these cantonments and camps in time to receive the army in September 1917, and to house it during the extreme winter of 1917–18 shortened the war by only one week, their total cost was saved."[84]

Blossom and his colleagues directed their most trenchant criticism against decentralization—the system whereby each federal agency handled its own construction. This arrangement, they declared, was "at variance with business practice" and "wrong in principle." Even within bureaus responsibility was divided; at the beginning of the war, the Ordnance Department alone had had five groups dabbling in construction. Consolidation seemed the logical solu-

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[79] *Ibid.*, 5863, 5864, 7203.
[80] *Ibid.*, 7209.
[81] Ltr, Crowell to Blossom *et al.*, 24 Jul 18. Quoted in *Blossom Report*, p. 13.
[82] *Blossom Report*, pp. 11–16.
[83] *Ibid.*, p. 194.
[84] *Ibid.*, pp. 194, 286.

tion. The board strongly recommended that all government construction, both military and civil, be centralized in a new department of public works. Discussing the future of the Army Engineers, the members agreed: "It is unwise to ask the War Department to do any national construction and engineering work that civilians can do, because, in another war, its engineers will again be unable to handle such home work in addition to their military work." Asserting that the officers of the Corps were "outclassed by civilian engineers on most construction work," the Blossom committee went on to state: "Satisfactory results in the war emergency construction have been accomplished largely by, and in degree proportionate to, the freeing of experienced constructors from control by Army officers."[85] Published by the Government Printing Office, the 380-page *Report of the Board of Review of Construction* bore the War Department's imprimatur.

When the Republicans gained control of Congress in 1918, more rigorous investigations appeared certain. By the summer of 1919 a select committee of the House, headed by Representative William J. Graham of Illinois, was ready to begin a full-dress inquiry into war expenditures. A subcommittee of two Republicans—John C. McKenzie of Illinois and Roscoe C. McCulloch of Ohio—and one Democrat—Frank E. Doremus of Michigan—was assigned to investigate construction. Chosen to head the subcommittee, McKenzie announced his intention "to take up the question of the so-called emergency contract for the purpose of ascertaining why it was adopted to the exclusion of the usual form of construction contract, who was responsible for its preparation, and whether or not such form of contract safeguarded the interest of the Government; and if not, why not?"[86] For the next six months, the McKenzie group probed for answers to these questions.

Called before the subcommittee, high-ranking Engineer officers characterized the emergency construction contract as evil and unnecessary. Giving his views on cost-plus agreements, General Goethals stated: "I have always been opposed to them. It might have cost the Government a little more to do it by force [account], but there could never have been any criticism if they had had the proper men and put one in charge of each cantonment." General Black testified in much the same vein.[87] Col. Clarence O. Sherrill, recently returned from France where he had served as chief of staff of the 77th Division, said that the camps and cantonments could have been built faster and cheaper by purchase and hire. The thirty-five district offices of the Corps of Engineers could have started construction almost at a moment's notice. A telephone call from General Black would have put the machinery in motion. Neither contractors nor cost-plus contracts would have had any part in the program. The cost-plus arrangement, Sherrill insisted, "is a dangerous one for the Government to use, and opens the door to both inefficiency and fraud."[88]

Members of the Starrett committee and the Construction Division em-

[85] *Ibid.*, pp. 275, 276, 296–98.

[86] H Subcomm 2 (Camps) of the Select Comm on Expenditures in the WD, 66th Cong, 1st sess, *Hearings on War Expenditures*, I, 869.

[87] *Ibid.*, pp. 1015, 1166–70.

[88] *Ibid.*, pp. 2391–94.

phatically disagreed. Referring to the adoption of the emergency construction contract in the spring of 1917, Frederick Law Olmsted told the subcommittee: "I feel more confident now than I could possibly feel then of the fact that it was, on the whole, the wise thing to do in the case of the cantonment work with its extraordinary urgency."[89] Similar statements came from Olmsted's colleagues on the Emergency Construction Committee and from General Marshall and his officers. Secretary Baker and top war production officials also defended the use of cost-plus contracts. Many of the country's foremost architects, engineers, and builders testified that the emergency agreement was the only solution to the Army's war construction problems.

Late in October 1919 the subcommittee headed west to hold hearings at Columbus and Chillicothe, Ohio, and at Rockford, Illinois. More than seventy witnesses, carpenters, plumbers, auditors, timekeepers, teamsters, and laborers employed by A. Bentley & Sons at Camp Sherman and by Bates & Rogers at Camp Grant, took the stand. Their testimony told a sorry story of bartenders, schoolboys, mail clerks, and farmers hired as carpenters; of slow-down orders from contractors' foremen; of a perpetual crap game at Camp Sherman; of wasted lumber and buried kegs of nails. Despite denials by Constructing Quartermasters and contractors' representatives, McKenzie seemed satisfied that unpardonable waste and mismanagement had occurred. Returning to Washington on 17 November, he continued hearings until mid-January 1920.[90] During February and March, subcommittee members labored over their reports, studying more than 3,000 pages of testimony taken from nearly 200 witnesses.

The majority report sent to Chairman Graham on 1 April was a blistering indictment of the war construction effort. Conspiracy, usurpation, favoritism, profiteering, fraud, reckless spending, and unconscionable waste—virtually every accusation ever voiced against the directors of the program was contained in the eighty-eight conclusions set forth by McKenzie and McCulloch. Starrett was the villain of the piece. Knowingly and willfully, he and his associates had preempted the functions of responsible War Department officials. Their "first and most momentous" step had been the "unwarranted and illegal" suspension of competitive bidding. Adoption of the cost-plus contract was "without either excuse or legal justification." Vast amounts of public money had been wasted; at least $5 million could have been saved on each of the sixteen cantonments had the program been properly administered. Partiality had been shown in awarding contracts; Starrett had gone so far as to give a cantonment to his own brother's firm. "Reckless and unlimited expenditures" had gone together with "exorbitant and unreasonable" profits; the more construction was made to cost, the higher were contractors' fees. Secretary Baker drew severe criticism on two counts: first, for failing to assign emergency construction "to the very excellent Corps of Engineers that had a large and varied experience, and was in touch with the industry, through its branches, throughout the country, and had at its command the pick of the engineers of the United States"; and, second, for

[89] *Ibid.*, p. 1073.
[90] *Ibid.*, pp. 1201–2110.

giving Starrett a free hand. McKenzie and McCulloch recommended that cost-plus agreements be prohibited on government work, that the Secretary of War be required to advertise construction contracts even in emergencies, and that all military construction be transferred to the Corps of Engineers. They further recommended that the Constitution be amended so that war profiteers could be tried for treason. Finally, they recommended that the subcommittee's records and reports be turned over to the Department of Justice to be used as the basis for civil and criminal actions.[91]

The minority report, written by Doremus and signed by all the Democratic members of the Graham committee, was a point by point rebuttal of the majority statement. After defending the conduct of the program and exonerating Starrett and the others, the minority presented two conclusions. First, Secretary Baker had acted wisely in abandoning peacetime contracting methods in favor of the cost-plus system; adherence to normal procedures "was not only impossible, but involved an element of danger that the Secretary of War could not have been warranted in incurring." Second, had "the views of the majority . . . been adopted at the beginning of the war, the whole building program would have been in a state of chaos, many of our troops would have perished with cold or died of disease in the winter of 1917, and the German Army would have been in Paris before our soldiers could have entered the battle lines."[92] The Republican Congress made short work of Doremus' report.

On 13 April 1920 the House voted overwhelmingly to accept the majority report.[93] The files of the McKenzie subcommittee went to the Justice Department. Wilson's attorney general, A. Mitchell Palmer, was not about to leave off combatting the "Red Menace" and turn prosecutor for the Republicans. What use the next administration would make of these files remained to be seen.

The Compromise of 1920

Which agency should build for the Army? After the Armistice, when Congress considered plans for the postwar military establishment, four possibilities lay open: continue the Construction Division as an independent branch; assign the work to the Corps of Engineers; return the function to The Quartermaster General; or entrust military construction to a new department of public works. Each of these proposals had powerful advocates. In their fight to perpetuate the separate construction corps, General Marshall and his officers had the backing of Assistant Secretary Crowell. In its aspirations, the Corps of Engineers had the support of Secretary Baker and Chief of Staff March. Among those who favored turning construction back to the Quartermaster Corps was the victorious commander of the American Expeditionary Force (AEF), General John J. Pershing. Many of the country's leading civilian engineers were vigorous proponents of a public works department. As it prepared to legislate the size and organization of the peacetime Army, Congress came under extreme pressure from these contending factions.

Prospects for a department of public works had never seemed so bright as in

[91] H Rpt 816, 66th Cong, 2d sess, 1 Apr 20.

[92] Submitted with H Rpt 816.

[93] 59 *Cong. Rec.* 5620–21.

April 1919, when representatives of seventy-four engineering societies and contractors associations met in Chicago to form the National Public Works Department Association (NPWDA). Marshall O. Leighton, pioneer conservationist and member of the American Engineering Council, became president. Milton E. Ailes, vice president of the Riggs National Bank of Washington, took over the post of treasurer. Francis Blossom headed the finance committee. The goal of the association was to bring about a merger of the sixteen federal construction agencies, including the Rivers and Harbors Service of the Corps of Engineers and the Construction Division of the Army. A committee drafted legislation which was introduced in Congress in June 1919. The industry threw its full weight behind this measure, the Jones-Reavis bill. Herbert C. Hoover and other noted engineers urged its passage. Pledges of support came from distinguished educators and prominent politicians. Committees from every state tried to line up Congressional delegations behind the proposition. The newly organized Associated General Contractors (AGC), the first national association of its kind, joined the crusade. And although they advocated a separate Army construction corps as the best arrangement within the War Department framework, Marshall and his officers heartily endorsed the proposal for a national department of public works.[94]

Three weeks before the introduction of the Jones-Reavis bill, another bill "to establish an Auxiliary Engineer Corps" was placed in the hopper. Offered by Senator Joseph E. Ransdell of Louisiana, president of the Rivers and Harbors Congress since 1905, this measure had originated with employees of the New Orleans Engineer District. In addition to river, harbor, and flood control work, the auxiliary corps would handle construction of highways, bridges, and other federal improvements. Condemning the Ransdell bill as "the first step in the attempt . . . to militarize the public works of the Federal government," NPWDA president Leighton wrote in the *Engineering News-Record:* "The long-expected response of the Corps of Engineers . . . to the activities of the engineers, architects and constructors of the country looking toward the establishment of a National Department of Public Works has been made." This statement drew from General Black a sharp denial that he had any connection with the measure.[95] Nevertheless, the incident served to highlight the bitter conflict between the Corps and sponsors of a public works department—a conflict that eventually forced a compromise on the military construction issue.

During the late summer of 1919, Congress took up the matter of the peacetime military organization. In August, upon the recommendation of Secretary Baker, identical bills were laid before the House and Senate, calling for an Army of 538,296, making permanent the wartime separation of transportation, motor transport, and finance from the

[94] (1) *Engineering News-Record*, vol. 82 (January–June 1919), p. 855; vol. 83 (July–December 1919), pp. 149, 968. Cited hereinafter as *ENR*. (2) *The Bulletin of the AGC*, January 1920, p. 18; February 1920, p. 40; October 1919, p. 44. (3) John J. Lenney, *Caste System in the American Army: A Study of the Corps of Engineers and Their West Point System* (New York: Greenberg, 1949), pp. 63–66.

[95] (1) *ENR*, vol. 82 (January–June 1919), p. 1232. (2) *Ibid.*, vol. 83 (July–December 1919), p. 141.

Quartermaster Corps, and assigning construction to the Corps of Engineers. Maintenance and utilities were split off from construction and put back under The Quartermaster General. A month later Representative S. Hubert Dent of Alabama sponsored a measure setting the strength of the Army at 312,400 and reconstituting the Quartermaster Corps as it had been before the war. Hearings before the Military Affairs Committees began in the fall of 1919 and continued into the winter.

To General March fell the main task of explaining why the Corps of Engineers ought to do construction. Should Congress approve a 500,000-man force, the Army would have to renovate temporary barracks and quarters, and, ultimately, build permanent housing. The Quartermaster Corps lacked technically trained officers; the detail system ruled out specialization. An artilleryman could be detailed to the Quartermaster Corps and put to building barracks. "That is his job," said March, "but he knows nothing about that kind of work." It was different with the Engineers. Construction was their business. All military construction, the Chief of Staff declared, should be in their hands.[96] Supplementing March's testimony, Secretary Baker and high-ranking officers, including Maj. Gen. Frank W. Coe, Chief of the Coast Artillery Corps, and Maj. Gen. George W. Burr, director of PS&T, propounded the official view.[97]

Maj. Gen. Harry L. Rogers, The Quartermaster General, found himself in an awkward position. Military law forbade his publicly opposing Baker and March. Yet it was difficult for him to keep silent and acquiesce in a plan to emasculate his department. Rogers was particularly anxious to retain responsibility for transportation. When he came before the Senate committee on 3 September 1919, he at first declined to make "any replies that would be in the nature of expressions of opinions different from those of my superior officers"; but when Chairman James W. Wadsworth urged him to speak candidly, Rogers flatly said that transportation, finance, and construction "should be just as they were before the war."[98]

Unlike Rogers, General Marshall had no hesitancy in opposing the Secretary and the Chief of Staff. Before the Senate committee, he argued forcefully for a permanent construction corps. First, he contended, construction, a civilian undertaking, should not be assigned to the "strictly military" Corps of Engineers:

> To place the Construction Division under the Engineer Corps would delegate to the latter work for which it is not qualified either by experience or training. To do so would be unsound in theory and untried in fact. The Engineer Corps has never done the construction work for the Army.

Second, the Construction Division should not come under The Quartermaster General:

> To return the Construction Division to the Quartermaster Corps would place upon the Quartermaster Corps an added burden which it should not be called upon to carry. The Quartermaster Corps will be tremendous as it is, its volume of work at least three times what it was previous to the war. . . . No

[96] H Comm on Mil Affs, 66th Cong, 1st sess, *Hearings* on H R 8287, p. 95.

[97] (1) *Ibid.*, pp. 1788, 1037. (2) S Comm on Mil Affs, 66th Cong, 1st sess, *Hearings* on S 2715, Part 4, pp. 218–19.

[98] S Comm on Mil Affs, 66th Cong, 1st sess, *Hearings* on S 2715, Part 11, pp. 544, 546.

commercial concern in this country would jeopardize the efficiency and economy with which this . . . work is to be done by placing it as a subdivision of a subdivision. It is entitled to and must have direct access to final authority in the interest of efficiency and cutting of red tape.

Third, and last, the Construction Division should be continued as a separate staff corps:

In the interest of economy, in the interest of preserving to the Government the business methods of the Construction Division; to make available to the Government the experience gained by having carried forward to successful completion the greatest construction program in the world and the experience gained by the greatest utility organization known to this country; in order to organize this purely commercial function of the War Department in keeping with common-sense business practice of the commercial world, . . . there must be included a separate staff unit known as a Construction Corps . . . .

Marshall then offered an amendment to the Senate bill incorporating his views.[99] Appearing at his own request before the House committee, he enlarged on his testimony before the Senate and made one additional point: "If utilities and construction were to . . . be under any bureau of the War Department, it would be distinctly in the interest of the Government for it to be made a part of the Quartermaster Corps."[100]

Others raised their voices against the War Department proposal to give construction to the Engineers. Testifying before the Senate group, William W. Atterbury, operating vice president of the Pennsylvania Railroad and, during the war, a brigadier general in charge of rail transportation in France, had this to say:

From the standpoint of the Army it is a mistake to take "the cream off the jar of milk" and put them in the Engineer Corps. Then you send them to a school, after which the Engineers are put out on civil work. The result is that you have produced neither engineers nor soldiers. That is perhaps a little exaggerated, but I say they are not engineers because when out on general work, their work is done by civilians. The work ordinarily done by the Corps of Engineers . . ., buildings and river and harbor work, should be done by a civilian organization under a civilian department.

Although he conceded that military engineering—fortifications and the like—was best left to military engineers, Atterbury recommended that the Corps be excluded from all other types of construction.[101] Senator Chamberlain, opposed to dismembering that "great supply organization," the Quartermaster Corps, made the comment: "To transfer to the Engineer Corps the duties of construction and repair that from the earliest days of the Army have formed a natural and important part of the duties of the Quartermaster's Department . . . apparently is satisfactory only to the Engineer Corps."[102]

To help resolve the controversy, the committee invited Generals Wood and Pershing to testify. Now, as earlier, Wood wished to see construction in the Corps of Engineers. "You can," he told the Senate group, "I think, very wisely go

[99] S Subcomm of the Comm on Mil Affs, 66th Cong, 1st sess, *Hearings* on S 2715, Part 22, pp. 1414–16, 1389–1427, *passim*.

[100] H Comm on Mil Affs, 66th Cong, 1st sess, *Hearings* on H R 8287, I, 1710, 1697–1739, *passim*.

[101] S Comm on Mil Affs, 66th Cong, 1st sess, *Hearings* on S 2715, Part 8, p. 439.

[102] S Comm Print, 66th Cong, 1st sess, *Army Reorganization Bill*, 5 Sep 19, p. 20.

back to the Quartermaster Corps and charge that corps with transportation, clothing, food, and pay, and take construction away from it and put it under the Engineers . . . the only trained construction corps we have."[103] In an exchange with Chairman Julius Kahn of the House Military Affairs Committee, Pershing took a different stand:

> Mr. Kahn. General, as I understand you, you recommend that the construction corps be continued as a part of the Quartermaster's Department.
>
> General Pershing. Yes; it should have an organization similar to the one it has now, and I have no doubt that the Quartermaster General would simply embody it as it stands, as a part of his organization. That would be the logical and rational thing for him to do.
>
> Mr. Kahn. It would not disrupt the Construction Corps if we were to transfer it?
>
> General Pershing. I should think not at all.[104]

Among the last to testify was Benedict Crowell, who made a strong plea for an independent construction corps. Appearing before the House committee on 9 January 1920, he stated:

> The main argument against the retention of the Construction Division seems to be one of expense. I have never been able to see, however, how the work could be done any cheaper by any other set of men. The plans of the Construction Division call for construction officers only to be located in the large posts . . . . The small repairs to the small posts could still be left to the quartermasters as they were in the old days.

When Congressman Anthony referred to reports by efficiency experts "giving figures, showing savings of a great many millions of dollars" to be brought about by consolidating functions, Crowell replied:

> It is easy to say that by this consolidation we can save a lot of money. I have heard that many times.
>
> You may have a few men out here digging a ditch and over in another place you may have a few men sawing wood. But by the consolidation of the men digging the ditch and the men sawing the wood you would not make any saving. Many of the consolidations proposed in the War Department are on a parallel with that.

One consolidation Crowell did favor was that of real estate with construction. Emphasizing the close relationship between the two, he said, "One can hardly be handled if separated from the other." Discussing proposals for an Under Secretary to have charge of the business side of the War Department, Crowell stressed the commercial character of both military construction and military real estate.[105]

When the hearings ended, Congressional opinion remained sharply divided on the issue of construction. A majority of the Senate committee proved to be receptive to the arguments advanced by Marshall and Crowell. On 27 January Chairman Wadsworth reported out a bill continuing the Construction Division as an independent branch. The measure also provided for a separate transportation corps and a separate finance corps. A minority report filed by Senator McKellar, who objected to the perpetuation of these separate branches, revealed the committee's lack of unanimity. After a heated debate, in which Engineer and separate corps partisans were beaten down, the House Military Affairs Committee voted in favor of the Quartermaster Corps. In

[103] *Ibid.*, Part 13, p. 637.

[104] H Comm on Mil Affs, 66th Cong, 1st sess, *Hearings* on H R 8287, I, 1542.

[105] *Ibid.*, II, 1824, 1819–20, 1825.

late February Chairman Kahn reported out a bill returning to The Quartermaster General all of his prewar functions, except finance, which would be a separate department.[106] Both committees had rejected Baker's proposal to put construction under the Engineers. As the bills reached the floor, the scene appeared to be set for a battle royal.

Although the committees had turned down his recommendation on construction, Secretary Baker was not ready to accept defeat. Toward the end of February he asked his staff to prepare an order transferring construction to the Corps of Engineers. He then left Washington on a short trip. While he was away, a draft of the order went to Acting Secretary Crowell, who pigeonholed it. Upon Baker's return, Crowell informed him that many of General Marshall's officers would resign if the order took effect. Since the Construction Division still had a sizable program under way, the threat was a real one. Regretfully, Baker suspended the order and left the decision to Congress.[107]

As their hopes of absorbing the Construction Division dimmed, the Engineers found themselves on the defensive. Since the fall of 1919, the campaign for a public works department had gained momentum. Recognizing the Corps as their great adversary, leaders of the NPWDA adopted a dual strategy: first, to save the Construction Division of the Army; and, second, to demolish the arguments in favor of having rivers and harbors under the Engineers. Speeches, bulletins, pamphlets, press releases, articles—Leighton and his staff pumped out a steady stream of propaganda. To transfer the Construction Division to the Engineers would be absurd; "civilian work totaling a hundred million dollars a year [would fall] into the hands of men with no training and experience along these lines."[108] To continue "militaristic control" over civil works was unsound.[109] The Engineers' civil projects were "much too costly, their procedure inefficient, and their training too narrow and inbred." The logic that they must have civil work in time of peace as training for their wartime mission was no longer valid. In France Engineer Regulars had performed non-Engineer duties. Line officers had laid out the trenches, the principal field works of the war. A civilian-manned construction corps had carried out a vast building program behind the lines. The Engineers in the AEF had been superfluous. Militarily, the Corps was defunct[110]—or so its opponents maintained.

By early 1920, the offensive seemed to be gaining ground. In January ninety-five delegates, representing societies with a membership of 90,000, met in Washington for a second NPWDA conference. A roll call indicated strong support in Congress; two states reported their entire delegations pledged to support the Jones-Reavis bill. Senators and Representatives threw open their doors. The

[106] (1) S Rpt 400, 66th Cong, 2d sess. (2) 59 *Cong. Rec.* 4205. (3) H Rpt 680, 66th Cong, 2d sess.

[107] Ltr, Baker to McKenzie, 10 Mar 20. Reprinted in 59 *Cong. Rec.* 4226.

[108] NPWDA *Bulletin*, November 26, 1919. Quoted in Lenney, *Caste System in the American Army*, p. 48.

[109] Testimony of Professor G. F. Swain, Harvard University, 11 Feb 20. In S Comm on Public Lands, 66th Cong, 2d sess, *Hearings* on S 2236, p. 14.

[110] National Public Works Department Association, *This Tells Why the Government Should Have a Department of Public Works* (Washington: NWPDA, 1919), pp. 23–26.

conference heard addresses by Governor Frank O. Lowden of Illinois, whose state was one of several with a public works department; by Representative Reavis, the author of the bill; by Mr. Leighton, who referred to "our effort, our idea, our legislative bill" as "the cornerstone of a structure embodying efficiency in all departments of Government"; and by General Marshall, who urged creation of the new department as "the most constructive step in the history of Government work." The gathering broke up on an optimistic note.[111] On 11 February the Senate Committee on Public Lands opened hearings on the Jones-Reavis bill.[112] On the 17th, speaking before the Mining and Metallurgical Engineers in New York City, Herbert Hoover reiterated his support of the measure.[113] At an AGC conference a few days later, members reported that sentiment in favor of the bill was growing rapidly.[114]

On 8 March 1920, when the House took up the Army reorganization bill, General Marshall's officers packed the galleries. Noting their presence, one representative observed: "I have never in all the history of Congress seen such a lobby as there has been in an effort to make this a separate corps."[115] In a surprise move, Representative Thomas W. Harrison of Virginia read into the record a recent letter from Secretary Baker to Chairman Kahn, endorsing the plan for an independent construction corps. The climax came on 11 March, when Representative Rollin B. Sanford of New York offered an amendment making permanent the Construction Division of the Army. Speaking in support of this rider, Congressman Reavis argued that military engineering was obsolete. "The great monuments of the Army engineers of the past withered before the march of the Germans in the first Battle of the Marne," he said. "The fortifications and forts of Belgium and France were of no service." Continuing, he observed:

> Among the very great Army Engineers that we had in the Army when that sort of situation came up was General Harts, a very great engineer. He was made provost marshal in Paris. General Sibert, to whom the world will always be indebted for his services in the Panama Canal construction, was put in charge of chemical warfare in Washington. General Biddle was put in charge of our troops in England, and in their places we put on the work at the front and behind the front civilian engineers, who knew road building, who knew railroads, who knew the building of bridges, who knew water supply, and sanitation; we put them in a construction corps, and their work in France is among the marvelous things that America did in that country during this war.[116]

Although the House applauded the mention of General Sibert's name, it proceeded to adopt the Sanford amendment by a vote of 133 to 74. Both houses now had before them bills favoring the separate corps. To many it appeared that Marshall's battle was won.

But Maj. Gen. Lansing H. Beach, who had succeeded Black as Chief of Engineers in January, was determined to fight to the finish. Upon learning of the

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[111] (1) *The Bulletin of the AGC*, January 1920, p. 18; February 1920, p. 40. (2) *ENR*, vol. 84 (January–June 1920), pp. 169–70, 292. (3) Lenney, *Caste System in the American Army*, p. 67.

[112] S Comm on Public Lands, 66th Cong, 2d sess, *Hearings* on S 2236, 11 Feb 20.

[113] *ENR*, vol. 84 (January–June 1920), p. 418.

[114] *The Bulletin of the AGC*, March 1920, pp. 43–44.

[115] 59 *Cong. Rec.* 4205.

[116] 59 *Cong. Rec.* 4226. The officers to whom Reavis referred were Brig. Gen. William W. Harts; Brig. Gen. William Sibert; and Maj. Gen. John Biddle.

House action, he went at once to Secretary Baker. On 12 March, the same day the amendment carried, the Secretary repudiated the letter read by Mr. Harrison. In a letter to Chairman Kahn, Baker stated: "Through inadvertence the full purport . . . escaped my notice and I desire at once to correct any erroneous impression it may have conveyed as to my attitude." He strongly urged that construction go to the Corps of Engineers.[117] On the 13th Beach called attention to serious errors of fact in Mr. Reavis' remarks. There was no Construction Corps in the AEF. Virtually all construction in France was done by the Engineers. Generals Harts, Sibert, and Biddle were promoted out of the Corps for "meritorious service."[118] On the 17th Beach reached an agreement with General Rogers: the Engineers would back the Quartermaster effort to obtain transportation, finance, and maintenance and utilities; The Quartermaster General would support the Engineers' contention that construction belonged in their Corps.[119] The following day General Pershing made a strong statement on the Engineers' behalf. Holding that the Engineers should not be "deprived of the credit justly due them for the energy and skill" they had displayed as the sole construction arm of the AEF, Pershing wrote:

> If Congress is indisposed to return the work to the Quartermaster Corps, it might with equal advantage be confided to the Corps of Engineers, which I know to have proved itself competent to perform the task promptly, economically, and to the satisfaction of the Army and the country. The long and honorable record of able, honest, and faithful service of the Corps of Engineers is one of which the entire Army, and the United States itself, may well be proud, and I feel sure that no mistake will be made if all military construction is, in the United States as it was in France, given to that Corps.[120]

On the 18th the House, reversing its stand, voted to strike out the Sanford amendment and passed the committee bill returning construction to the Quartermaster Corps.

Having blocked the separate corps in the House, Beach hoped to go on to win the Senate vote. Initially, he tried to gain the support of Senator Wadsworth. Two of the top-ranking Engineers in the AEF, Maj. Gen. William C. Langfitt and Maj. Gen. Mason M. Patrick, went in person to ask that Wadsworth sponsor an amendment favoring the Corps. Making the same request in writing, General Beach inclosed a draft of the proposed rider and copies of his correspondence with General Rogers. Secretary Baker also urged the Senator to back the Engineers.[121] When Wadsworth rejected these advances, another champion was found. On 13 April Senator Irvine L. Lenroot of Wisconsin moved to strike out the provision in the committee bill which called for a separate corps and announced that if his motion carried he would propose that construction be placed where it belonged—in the Corps of Engineers. The highlight of the debate was a speech by Senator Wadsworth, flaying Generals Beach and Rogers. Behind the scenes,

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[117] Ltr, Baker to Kahn, 12 Mar 20. Martin Papers in EHD.

[118] Ltr, Beach to Kahn, 13 Mar 20. Martin Papers.

[119] (1) Ltr, Beach to Rogers, 17 Mar 20. (2) Ltr, Rogers to Beach, even date. Both in Martin Papers.

[120] Ltr, Pershing to Kahn, 18 Mar 20. Martin Papers.

[121] (1) Ltr, Beach to Wadsworth, 19 Mar 20. Martin Papers. (2) Ltr, Baker to Wadsworth, 29 Mar 20. AG 011–012.2.

Wadsworth charged, a fierce struggle for power had raged between the two. But when both realized they were losing, they had joined forces to squelch the separate corps. Wadsworth advised his colleagues to turn down the Lenroot amendment.[122] The decision came on 14 April; Lenroot was defeated. Six days later the Senate passed the committee bill providing for an independent construction corps.

With the Engineers out of the running, the choice was between the Construction Division of the Army and the Quartermaster Corps. There could be no question as to which General Beach preferred. When the House and Senate conferees made their report late in May, he could take heart from their decision. Along with transportation, construction and real estate were assigned to General Rogers' department. Both houses accepted the conferees' version of the bill, and on 4 June President Wilson signed it into law. In his order transferring construction, Secretary Baker directed that the Construction Service be "organized and operated as a separate service of the Quartermaster Corps."[123] Implicit in this directive was the idea that construction might be lifted out again in another emergency. The new arrangement was a compromise; how long it would endure only time could tell. To the Engineer way of thinking, the Quartermaster Corps was a supply organization. What was needed was a branch whose sole duty would be construction. That branch ought to be the Corps of Engineers. From this premise, no Chief of Engineers ever wavered.

When the Construction Division of the Army went down in defeat, the drive for a national department of public works was temporarily blunted. As the civilians who had joined up in 1917 returned to their firms, pressure on Congress relaxed. According to Leighton's recollection, two or three "old fellows, fierce folk who would speak out," continued the battle. But Marshall's officers, on whose backing Leighton had counted heavily, left him in the lurch. When Congress adjourned early in June, on the eve of the Republican national convention, the Jones-Reavis bill died in committee. But the "dream," as Leighton called it, was far from ended.[124] Proponents of a public works department would be heard from again.

The Construction Division was disbanding. One by one the officers were saying farewell. General Marshall was resigning from the Army to become managing director of the Associated General Contractors. Colonel Hartman, the one remaining regular, was attempting to sign up temporary officers for permanent service in the Quartermaster Corps. The spirit of the wartime organization was preserved in a song to be sung to the tune of "Hinkey Dinkey Parlez-Vous." Evoking memories of their warm comradery:

> "We fought the war with General Puck's Construction Crew,
> The only French we ever learned was 'Entre Nous'"

and glorying in their accomplishment:

> "We made a dollar look like a dime,

[122] 59 *Cong. Rec.* 5600–5612, 5650, 5894.
[123] WD GO 42, 14 Jul 20.
[124] Interv with Marshall O. Leighton, 2 Apr 57. See also *The Bulletin of the AGC*, August 1920, p. 33.

But all the camps were done
on time,
By General Puck's Construction Crew"

the singers ended with a promise:

"And if we have another war,
They'll only have to signal for
General Puck's Construction
Crew."[125]

[125] Reprinted in *The Homecomer*, December 3, 1937, p. 4.

On that note the Construction Division of the Army passed into history.

American experience in the First World War had demonstrated conclusively the vital role of construction in modern-day mobilization and the decisive importance to national security of a strong construction force in being. Unfortunately, lessons taught are not always lessons learned. A second, graver emergency would have to arise before these truths were grasped and translated into action.